



PROJECT MANUAL

2021 Street & Utility Improvements

SAP 038-630-001

SAP 038-635-001

SAP 038-620-010

City Streets: 4th Ave., 5th Ave. and 6th Ave.

Lake County & City of Two Harbors

Lake County, MN

**ISSUED FOR
CONSTRUCTION**



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CERTIFICATION

PROJECT MANUAL

FOR

2021 STREET & UTILITY IMPROVEMENTS

SAP 038-630-001

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SAP 038-620-010

CITY STREETS: 4TH AVE., 5TH AVE. & 6TH AVE.

LAKE COUNTY & CITY OF TWO HARBORS

LAKE COUNTY, 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.

By:




Joseph Pelawa, P.E.
License No. 42603

Date: December 15, 2020

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 State Professional Engineer under the laws of the State of Minnesota.

By:

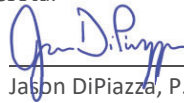


Joseph R. Rhein, P.E.
License No. 23781

Date: January 12, 2021

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.

By:



Jason DiPiazza, P.E.
License No. 46075

Date: February 26, 2021

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(1910) FUEL ESCALATION CLAUSE

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DRAWINGS (UNDER SEPARATE COVER):

94 sheets numbered G0.01 through C9.12, inclusive, dated December 15, 2020, and with each sheet bearing the following general title:

2021 Street & Utility Improvements, SAP 038-630-001, SAP 038-635-001, SAP 038-620-010

Lake County & City of Two Harbors

Lake County, MN

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

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ADVERTISEMENT FOR BIDS

2021 Street & Utility Improvements

SAP 038-630-001

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City Streets: 4th Ave., 5th Ave. & 6th Ave.

Lake County & City of Two Harbors

Lake County, MN

RECEIPT AND OPENING OF PROPOSALS:

- Electronic Bids will be received until 11:00 a.m. on April 6, 2021 through Bid Express www.bidexpress.com for the construction of the Lake County & City of Two Harbors project listed above.
- Proposals will be opened and read publicly at 11:01 a.m. on this date by the Clerk of the County Board at Lake County Service Center, 616 3rd Avenue, Two Harbors, MN 55606-1504.
- Plan holders, Bidders and the Public are welcome to join the bid opening by video conference. Information on how to access the public bid opening can be obtained by contacting the Lake County Highway Department. ATTN: Darbie Eschenbacher at 218-834-8380 or Darbie.Eschenbacher@co.lake.mn.us.

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

55	EA	Clearing & Grubbing – Tree Removal
12,874	SY	Remove Pavement Surfaces
2,328	LF	8” PVC Sanitary Sewer
128	LF	Drainage Structure Design Special 1 (4007) Sanitary
2,537	LF	6” PVC Sanitary Service Pipe
2,753	LF	Watermain – Ductile Iron CL 52
2,080	LF	¾” Type K Copper Pipe - Water Service
881	LF	12” to 42” RCP Storm Sewer
4,138	LF	6” Perforated PVC Pipe - Drain
71	LF	Drainage Structures Storm
10,611	CY	Excavation - Common
5,204	CY	Select Granular Embankment
4,243	CY	Aggregate Base, Class 5
3,160	TN	SP Bituminous Mixture
7,171	LF	Concrete Curb & Gutter
613	SY	Concrete Driveway and Apron
37,630	SF	Concrete Walk
1.4	AC	Seed, Fertilizer and Mulch
3,220	LF	Pavement Line Marking

together with numerous related items of work, all in accordance with Plans and Specifications.

PROJECT LABOR AGREEMENT: This project is subject to the Project Labor Agreement and associated requirements found in the Project Manual.

This project is subject to Prevailing Wage Rates and the provisions of MINN. STAT. 16C.285 Responsible Contractor are imposed as a requirement of this contract. All bidders and persons or companies providing a response/submission to the Advertisement for Bids of Lake County shall comply with the provisions of the statute.

COMPLETION OF WORK:

1. Work on streets fronting the Minnehaha School (School Loop Phase) shall not start until after school summer recess begins, anticipated date of **June 11, 2021**, and be substantially complete on or before **August 20, 2021**.
2. Work on the County Roads (CSAH 30, CSAH 35 and CSAH 20) shall be complete on or before **October 15, 2021**.
3. All work under the Contract must be complete by **August 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 <https://www.co.lake.mn.us/>, www.bidexpress.com. Any addendums may also be distributed by mail, fax, or email.

TO OBTAIN BID DOCUMENTS:

- You may view the digital plan documents for free by entering Bid Express Solicitation # SAP 038-630-001 on the website's Project Search page. Documents may be viewed for **FREE**. FEES apply to documents downloaded by Vendors. Please contact bidexpress.com at 888-352-2439 or support@bidexpress.com for assistance in Vendor Account membership registration, viewing, downloading, and working with this digital project information.
- An optional paper set of project documents is also available for a nonrefundable price of \$150.00 per set, which includes applicable sales tax and shipping. Please make your check payable to Bolton & Menk, Inc. and send it to 4690 Miller Trunk Highway, Suite 350, Duluth, MN 55811, (218) 729-5939.

Inquires and questions are to be submitted thru Bid Express.

BID SUBMITTAL: A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid. For this project, Lake County will be accepting **ONLY** online electronic bids through BIDEXPRESS. To access the electronic bidding click the "FOR VENDORS" button at the top of the Bid Express website, set up or LOGIN to your Vendor Account, select project, download the project documents and complete the bidding process online.

Prospective bidders must be on the plan holders list through Bid Express for bids to be accepted. Bids will be received for a single prime Contract. Bids shall be on a unit price basis for the Base bid, with any add alternate bid items as indicated on the Bid Form.

BID SECURITY/PROPOSAL GUARANTY: This bond or guaranty may be submitted through Bid Express using Surety 2000 or Surety Wave. An electronic copy of a certified check, cashier's check, or paper bid bond in the amount of not less than 5 percent of the total amount bid, drawn in favor of Lake County shall be uploaded through Bid Express.

A Proposal Guaranty in the form of a bond must meet the following requirements:

1. Issued by a corporation authorized by the Minnesota Department of Commerce to contract as a surety in the State of Minnesota; and
2. Conditioned on execution of the Contract.

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: February 23, 2021 /s/ Matthew Huddleston
County Administrator

Published:

Northshore Journal: March 5, 2021, March 12, 2021 and March 19, 2021
Finance and Commerce: March 5, 2021 and March 12, 2021
Bid Express: March 5, 2021
MnDOT e-advert website March 5, 2021

****END OF SECTION****

TO THE BOARD OF COMMISSIONERS, COUNTY OF LAKE, STATE OF MINNESOTA:

According to the advertisement of Lake County Board of Commissioners inviting proposals for the improvement of the section of highway hereinbefore named, and in conformity with the Contract, Plans, Specifications and Special Provisions pertaining thereto, all on file in the office of the Auditor of Lake County Highway Engineer:

(I)(We) hereby certify that (I am) (we are) the only person(s) interested in this proposal as principal(s); that this proposal is made and submitted without fraud or collusion with any other person, firm or corporation at all; that an examination has been made of the site of the work and the Contract form, with the Plans, Specifications and Special Provisions for the improvement.

(I)(We) understand that the quantities of work shown herein are approximate only and are subject to increase or decrease; that all quantities of work, whether increased or decreased within the limits specified in MnDOT 1903 and 1402, are to be done at the unit prices shown on the attached schedule; that, at the time of opening bids, totals only will be read, but that comparison of bids will be based on the correct summation of item totals obtained from the unit prices bid, as provided in MnDOT 1301.

(I)(We) propose to furnish all necessary machinery, equipment, tools, labor and other means of construction and to furnish all materials specified, in the manner and at the time prescribed, all according to the terms of the Contract and Plans, Specifications, and the Special Provisions forming a part of this.

(I)(We) further propose to do all Extra Work that may be required to complete the contemplated improvement, at unit prices or lump sums to be agreed upon in writing before starting such work, or if such prices or sums cannot be agreed upon, to do such work on a Force Account basis, as provided in MnDOT 1904.

(I)(We) further propose to execute the form of Contract within 10 days after receiving written notice of award, as provided in MnDOT 1306.

(I)(We) further propose to furnish a Payment Bond and a Performance Bond each equal to the Contract Amount as required by MN Statute § 574.26, as security for the construction and completion of the improvement according to the Plans, Specifications and Special Provisions as provided in MnDOT 1305.

(I)(We) further propose to do all work according to the Plans, Specifications and Special Provisions, and to renew or repair any work that may be rejected due to defective materials or workmanship, before completion and acceptance of the Project by Lake County Highway Engineer.

(I)(We) agree to all provisions of Minnesota Statutes, Section 181.59

(I)(We) further propose to begin work and to prosecute and complete the same according to the time schedule set forth in the Special Provisions for the improvement.

(I)(We) assign to Lake County all claims for overcharges as to goods and materials purchased in connection with this Project resulting from antitrust violations that arise under the antitrust laws of the United States and the antitrust laws of the State of Minnesota. This clause also applies to subcontractors and first tier suppliers under this Contract.

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ARTICLE 1 – DEFINED TERMS

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

ARTICLE 2 —BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid. 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. A. Subsurface and Physical Conditions; Hazardous Environmental Conditions
 - 1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
 - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
 - 2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
 - 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. Addendums will be posted on-line at www.bidexpress.com.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents on-line at www.bidexpress.com in writing. Contact information and submittal procedures for such questions can be found at: www.bidexpress.com
- 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.
- 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. Underground Utilities: Sewer & Water
 - B. Bituminous Paving & Materials
 - C. Concrete Supplier & Subcontractor
 - D. Erosion Control Subcontractor
 - E. Turf Restoration Subcontractor
- 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 and must be completed through Bid Express.
- A. A Bid price must be indicated for each Bid item, alternate, adjustment unit price item, and unit price item listed therein.
- 12.02 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.
- 12.03 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.
- 12.04 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.
- 12.05 A Bid by an individual must show the Bidder's name and official address.
- 12.06 A Bid by a joint venture must be executed by an authorized representative of each joint venture 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.
- 12.07 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.08 Postal and e mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.09 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.
- 12.10 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
- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.

- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

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.
- 14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15 — MODIFICATION AND WITHDRAWAL OF BID

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

ARTICLE 16 — OPENING OF BIDS

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

ARTICLE 17 —BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 18 —EVALUATION OF BIDS AND AWARD OF CONTRACT

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

18.05 *Evaluation of Bids*

- A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- B. In the comparison of Bids for consideration of award shall be on the basis of the Total Base Bid only. Bid alternate discussions as shown on bid alternate form is for information and determination by the Owner which may award any of the added alternates to the low base bid.
- C. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.

18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19 — BONDS AND INSURANCE

19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.

19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20 — SIGNING OF AGREEMENT

20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 10 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.

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SECTION C-210 - ELECTRONIC/DIGITAL DOCUMENTS

PART 1 -- GENERAL

1.1 SUMMARY

- A. The Owner or Engineer may elect to provide copies of the contract documents or supplemental information to the Contractor in electronic/digital media format. This section governs the availability, use and limitations of information provided in electronic/digital format.

1.2 FORMAT OF DOCUMENTS AND CONTROLLING CRITERIA

- A. The Agreement identifies the contract documents upon which the Bidder or Contractor may rely. The General Conditions set forth the provisions governing the intent, interpretation and use of the contract documents. This section is intended to augment the Agreement and General Conditions and to clarify limitations on the use of electronic/digital documents.
- B. "Hard Copies" of the Contract Documents consist of complete sets of those documents specifically listed in the Agreement including the version of the plans and specifications that are signed and sealed with original signature (or unalterable and legally acceptable facsimile copy of said signature) denoting the designer's final intent for bidding purposes. Electronic/digital files in the "Native File Format" are saved in the default file format used by a specific software application. The native file format of an application is proprietary, and these types of files are not meant to be transferred to other applications. Electronic/digital files in the native file format may be altered and may not be representative of the paper copies of the documents
- C. For bidding purposes only, Hard Copies of the Contract Documents shall be construed to include electronic/digital files of the Bidding Documents (as defined in Section C-200), prepared by Engineer and provided under direction of Engineer in a Portable Document Format (PDF) format or other file format that is intended by the Engineer and Owner to be unalterable and exactly representative of the information contained in the paper copies of the documents.
- D. The project plans graphically set forth design requirements for the project. These plans are a two-dimensional representation of three-dimensional existing conditions and proposed improvements. Because it is generally impossible to economically or graphically duplicate real world conditions on a two-dimensional plan format, certain approximations, graphical simplifications, intentional or unintentional inaccuracies must generally be used to adequately describe the existing conditions and work to be done on the plans. Because of these graphical compromises, certain dimensions and other supplementary notes and information may be added to the plans to control the specific requirements of the design. Electronic/digital versions of the plans in PDF format, native file format or other electronic file format may imply a spatial accuracy that exceeds the graphical limitations of the original plan set. This is also true of supplementary electronic/digital information developed from the plans or underlying support data (such as layers, hidden lines, survey points or topographic computational networks).
- E. In the event of a conflict between an electronic/digital version of a Contract Document and the Hard Copy of the document, the Hard Copy shall be deemed to govern. Bidders, by submitting a bid, and the Contractor by executing the contract, acknowledge these graphical limitations to the plan development process and accept the controlling nature of the Hard Copies of all project documents as set forth in the General Conditions.

1.3 AVAILABILITY AND USE OF DIGITAL/ELECTRONIC DOCUMENTS

- A. When the Advertisement for Bids or Project Manual indicate that electronic/digital copies of the Plans and Specifications are available, such documents shall be made available to the Bidder or Contractor upon request in PDF format or other file format that is intended by the Engineer and Owner to be unalterable and exactly representative of the information contained in the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of electronic/digital documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot

and do not guarantee that electronic/digital versions and reproductions prepared from those versions are identical in every manner to the paper copies.

- A. Except as otherwise advised, the Bidder may use and rely upon complete sets of the PDF or other electronic/digital version of the Bidding Documents, prepared by the Engineer and provided under direction of the Engineer, for preparation of its bid. However, Contractor assumes all risks associated with differences arising from transmission/receipt of electronic/digital versions and reproductions prepared from those versions and, further, assumes all risks, costs and responsibility associated with use of the electronic/digital versions to derive information that is not explicitly contained in the paper copies of the documents and for Bidder's reliance upon such derived information.
- B. When using PDF versions of the bidding documents, the Contractor shall prepare its bid together with all required submittals; and deliver the Bid in the manner described in the bidding documents. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the PDF version, providing that all required information and submittals are included with the bid.
- C. After a Contract is awarded, the Owner may provide or direct the Engineer to provide for the use of the Contractor such electronic/digital copies of the contract documents or other support documents in native file formats as may have been previously developed as part of the Project design process. Release of such information, if available, shall be deemed to be solely for the convenience of the Contractor. Unless the Contract Documents explicitly identify that such information shall be available to the successful Bidder, nothing herein shall create an obligation on the part of the Owner or Engineer to provide or create such information and the Contractor is not entitled to rely on the availability of such information in the preparation of its Bid or pricing of the work. In all cases, the Contractor shall take appropriate measures to verify that any electronic/digital data is appropriate and adequate for the Contractor's specific purposes. In no case shall the Contractor be entitled to extra compensation or adjustment in contract time due to claims arising from any differences between the Hard Copies of the Contract Documents and electronic/digital data.
- D. Release of all electronic/digital information requested by the Contractor shall be at the sole discretion of the Owner or Engineer and a separate charge will be made to the Contractor for creation or preparation of such information.
- E. Release of electronic/digital data shall be subject to the herein accompanying form, entitled "REQUEST TO PROJECT ENGINEER FOR ELECTRONIC/DIGITAL DATA AND CONDITIONS OF USE," together with such other limitations as the Owner or Engineer may deem appropriate for the Project. In the event of questions, conflicts, inconsistencies between any the electronic/digital data, the Hard Copies of the Contract Documents shall govern unless otherwise directed in writing by the Owner and Engineer.
- F. In the event that Owner elects to provide or directs the Engineer to provide to the Contractor any Contractor-requested electronic/digital data that is not explicitly identified in the Contract Documents as being available to the successful bidder, the Engineer shall be reimbursed by the Contractor on an hourly basis (at \$120 per hour) for all engineering costs necessary to create or otherwise prepare the data in a manner deemed appropriate by the Engineer.

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

REQUEST TO PROJECT ENGINEER (BOLTON & MENK, INC. "BMI")
FOR ELECTRONIC/DIGITAL DATA AND CONDITIONS OF USE

Project Contractor ("USER"):	
Project Owner	Lake County, MN
Project Name	2021 Street & Utility Improvements: SAP 038-630-001, SAP 038-635-001, SAP 038-620-010
Description of Data/Files To Be Provided	

A. The electronic/digital data covered by this Request was prepared by BMI as an internal working document for its purposes solely and is being provided to USER on an "AS IS" basis without any warranties of any kind, including, but not limited to implied warranties of fitness for any purpose. As such, the USER is advised and acknowledges that the information may not be suitable for the USER's application or may require substantial modification and independent verification by the USER. Information may include intentional or unintentional inaccuracies, approximations, graphical simplifications, undocumented intermediate revisions and other devices that may affect subsequent reuse.

B. The electronic/digital data may not accurately reflect the printed products (also known as Hard Copies) that are signed or sealed by BMI. In the case of conflicts between the signed or sealed documents and electronic/digital data, the Hard Copies shall control. Files in electronic/digital media format of text, data, graphics, or of other types that are provided by BMI to USER are only for convenience of USER. Any conclusion or information obtained or derived from such electronic/digital data will be at the USER's sole risk and the USER waives any claims against BMI or PROJECT OWNER arising from use of electronic/digital data.

C. USER shall indemnify and hold harmless PROJECT OWNER and BMI and their subconsultants from all claims, damages, losses, and expenses, including attorneys' fees and defense costs arising out of or resulting from USER's use, adaptation or distribution of any electronic/digital data provided under this Request.

D. All Documents provided in electronic/digital format are instruments of service and, unless otherwise specifically identified in the Contract between the USER and PROJECT OWNER, are not Contract Documents. BMI shall retain all ownership, copyrights and property interests therein, subject to any agreement between BMI and the PROJECT OWNER. Nothing herein shall be deemed to be

a transfer of the ownership rights of BMI or those of the PROJECT OWNER to the USER and USER's rights regarding any information shall be limited those explicitly described in this Request.

E. Although BMI may advise the USER of known errors or required updates in electronic/digital data provided to the USER upon discovery by BMI or notice to BMI of such conditions, the USER agrees that BMI and PROJECT OWNER are under no obligation to notify USER or correct, revise, update or otherwise maintain any electronic/digital data provided to the USER, nor shall the USER be entitled to make any claim for extra compensation or other consideration on account of using such data.

F. USER agrees not to sell, copy, transfer, give away or otherwise distribute this information (in source or modified file format) to any third party without the direct written authorization of BMI, unless such distribution is specifically identified in this request and is limited to USER's subcontractors. USER warrants that subsequent use by USER'S subcontractors shall comply with all terms of this Request.

G. Provision of this information does not include any license of software or other systems necessary to read, use or reproduce the information. USER assumes all responsibility to obtain any necessary software and appropriate licenses to utilize the information in any format or application.

H. The USER shall compensate BMI in the amount of \$120.00/per hour for all labor and expenses associated with the handling, processing and delivery of the information in an "as is" form or to adapt such information into a form which BMI, in its sole discretion, deems to reasonably reflect the limits of the accuracy or usability of the information. USER acknowledges such compensation shall be deemed to be a data processing fee and is not a design fee or part of the design fees paid by the PROJECT OWNER to BMI.

Accepted by: USER

Printed Name of "USER"

Date

Name and Title of Authorized Representative of USER

Signature of Authorized Representative of USER

Approved: Project Engineer:
(BMI)

Signature of Project Engineer's Representative

Version 04/11/07

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NOTICE TO BIDDERS

Minnesota Statutes require prompt payment to subcontractors:

Minn. Stat. § 471.425 PROMPT PAYMENT OF LOCAL GOVERNMENT BILLS.

Subdivision 1. **Definitions.** For the purposes of this section, the following terms have the meanings here given them.

. . . (d) "Municipality" means any home rule charter or statutory city, county, town, school district, political subdivision or agency of local government. "Municipality" means the Metropolitan Council or any board or agency created under chapter 473.

. . . Subd. 4a. **Prompt payment to subcontractors.** Each contract of a municipality must require the prime contractor to pay any subcontractor within ten days of the prime contractor's receipt of payment from the municipality for undisputed services provided by the subcontractor. The contract must require the prime contractor to 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. 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. 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.

Minn. Stat. § 15.72 PROGRESS PAYMENTS ON PUBLIC CONTRACTS; RETAINAGE.

. . . Subd. 2. **Retainage.** . . . (c) A contractor on a public contract for a public improvement must pay all remaining retainage to its subcontractors no later than ten days after receiving payment of retainage from the public contracting agency, unless there is a dispute about the work under a subcontract. If there is a dispute about the work under a subcontract, the contractor must pay out retainage to any subcontractor whose work is not involved in the dispute, and must provide a written statement detailing the amount and reason for the withholding to the affected subcontractor.

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**MINNESOTA DEPARTMENT OF TRANSPORTATION
NOTICE TO BIDDERS:
SUSPENSIONS/DEBARMENTS
THIS NOTICE APPLIES TO STATE-FUNDED AND FEDERALY-FUNDED PROJECTS**

Do not use suspended or debarred parties as subcontractors or material suppliers on this project!

Both the federal government and the State of Minnesota suspend and debar vendors. Review the list of suspended and debarred vendors before submitting a bid or a request to sublet. If your bid is based on using a suspended or debarred vendor, you will not be entitled to additional compensation for replacing the suspended or debarred vendor with a qualified vendor.

State Suspensions and Debarments

The State of Minnesota's list of suspended and debarred vendors is maintained by the Minnesota Department of Administration, Office of State Procurement, and can be found at this link: <http://www.mmd.admin.state.mn.us/debarredreport.asp> . This list includes vendors suspended and debarred by the Department of Administration and MnDOT.

Federal Suspensions and Debarments

The federal government maintains a searchable database of suspensions and debarments, called the System for Award Management (SAM), which is found at this link: <https://www.sam.gov/SAM/> . You can use the "Search Records" function without registering for an account.

November 9, 2020

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NOTICE TO ALL BIDDERS

To report bid rigging activities call:

1-800-424-9071

The U.S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

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Items to Be Submitted with the Bid

for

2021 Street & Utility Improvements

SAP 038-630-001

SAP 038-635-001

SAP 038-620-010

City Streets: 4th Ave., 5th Ave. & 6th Ave.

Lake County & City of Two Harbors

Lake County, MN

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BID FORM FOR CONSTRUCTION CONTRACT

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

ARTICLE 1 — OWNER AND BIDDER

- 1.01 This Bid is submitted to: Clerk of the County Board at Lake County Service Center, 616 3rd Avenue, Two Harbors, MN 55606-1504. Refer to the Advertisement for Bids for submittal location, format, and deadline for consideration.
- 1.02 Bids may also be submitted electronically through Bid Express.
- 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; (Section C-430 – Bid Bond)
 - B. List of Proposed Subcontractors;
 - C. List of Proposed Suppliers;
 - D. Evidence of authority to do business in the State of Minnesota; or a written covenant to obtain such authority within the time for acceptance of Bids;
 - E. Required Bidder Qualification Statement with supporting data;
 - F. Responsible Contractor Verification and Certification of Compliance (5 Pages) of this Project Manual, and
 - G. Affidavit of Non-Collusion of this Project Manual.

ARTICLE 3 —BASIS OF BID

- 3.01 Unit Price Bids
 - A. Bidder will perform the Work listed in the Bid Schedule at the indicated unit prices.
 - B. Bidder acknowledges that:
 1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
 2. bid alternates are for information and determination by the owner after bids are opened, and owner may award any of the added alternates to the low base bid,
 3. 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 on streets fronting the Minnehaha School (School Loop Phase) shall be substantially complete on or before August 20, 2021.
- 4.03 Bidder agrees that the Work on the County Roads (CSAH 30, CSAH 35 and CSAH 20) shall be substantially complete on or before October 1, 2021.
- 4.04 And the project will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before August 1, 2022.
- 4.05 Bidder accepts the provisions of the Agreement as to liquidated damages.

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

- 5.01 Bid Acceptance Period
 - A. This Bid will remain subject to acceptance for 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:

Addendum Number	Addendum Date

ARTICLE 6 — BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

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

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

6.02 Bidder's Certifications

- A. The Bidder certifies the following:
 1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
 2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
 3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
 4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:

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

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

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

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

Address for giving notices:

Bidder's Contact:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Phone: _____

Email: _____

Address: _____

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

SCHEDULE OF UNIT PRICES

S.A.P. 038-635-001 (CSAH 35) & 038-630-001 (CSAH 30) & 038-620-010 (CSAH 20)
 2021 STREET & UTILITY IMPROVEMENTS
 LAKE COUNTY, MINNESOTA
 BMI PROJECT NO. U17.120606

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 (P)=Planned Quantity Basis of Measurement

ITEM NO.	SPEC. ITEM NUMBER	ITEM DESCRIPTION	APPROX.		UNIT	
			QUANT.	UNIT	PRICE	AMOUNT
BASE BID						
1	2021.501	MOBILIZATION	1	LS	\$177,393.68	\$177,393.68
2	2101.505	CLEARING	1	AC	\$2,000.00	\$2,000.00
3	2101.505	GRUBBING	1	AC	\$1,000.00	\$1,000.00
4	2101.524	CLEARING	55	TREE	\$275.00	\$15,125.00
5	2101.524	GRUBBING	55	TREE	\$140.00	\$7,700.00
6	2104.502	SALVAGE SIGN	28	EA	\$40.00	\$1,120.00
7	2104.502	REMOVE HYDRANT	5	EA	\$1,100.00	\$5,500.00
8	2104.502	REMOVE GATE VALVE & BOX	6	EA	\$400.00	\$2,400.00
9	2104.502	REMOVE MANHOLE OR CATCH BASIN	15	EA	\$250.00	\$3,750.00
10	2104.503	REMOVE CONCRETE CURB	44	LF	\$30.00	\$1,320.00
11	2104.503	SALVAGE FENCE	226	LF	\$21.00	\$4,746.00
12	2104.503	REMOVE SEWER PIPE (SANITARY)	2,351	LF	\$10.50	\$24,685.50
13	2104.503	REMOVE SEWER PIPE (STORM)	430	LF	\$26.00	\$11,180.00
14	2104.503	REMOVE CURB & GUTTER	5,968	LF	\$2.00	\$11,936.00
15	2104.503	REMOVE WATER MAIN	2,506	LF	\$8.50	\$21,301.00
16	2104.503	REMOVE METAL PIPE RAILING	170	LF	\$6.50	\$1,105.00
17	2104.504	REMOVE PAVEMENT	9,088	SY	\$5.25	\$47,712.00
18	2104.518	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	2,329	SF	\$1.50	\$3,493.50
19	2104.518	REMOVE CONCRETE DRIVEWAY PAVEMENT	1,393	SF	\$1.50	\$2,089.50
20	2104.518	REMOVE CONCRETE WALK	30,356	SF	\$0.70	\$21,249.20
21	2104.601	REMOVE WATER MAIN (CROSS CONNECT)	1	LS	\$3,950.00	\$3,950.00
22	2104.601	SALVAGE & REINSTALL DECK	1	LS	\$1,200.00	\$1,200.00
23	2104.603	SAWING PAVEMENT (FULL DEPTH)	651	LF	\$3.00	\$1,953.00
24	2104.603	ABANDON WATER MAIN	380	LF	\$7.00	\$2,660.00
25	2104.618	REMOVE CONCRETE STEPS	84	SF	\$15.00	\$1,260.00
26	2105.504	GEOTEXTILE FABRIC TYPE 5	12,685	SY	\$1.50	\$19,027.50
27	2105.607	EXCAVATION SPECIAL	50	CY	\$69.00	\$3,450.00
28	2105.607	HAUL & DISPOSE CONTAMINATED MATERIALS	50	CY	\$29.00	\$1,450.00
29	2106.507	EXCAVATION - COMMON (EV) (P)	10,611	CY	\$19.00	\$201,609.00
30	2106.507	EXCAVATION - SUBGRADE (EV)	643	CY	\$20.00	\$12,860.00
31	2106.507	SELECT GRANULAR EMBANKMENT (CV)	5,204	CY	\$23.00	\$119,692.00

SCHEDULE OF UNIT PRICES

S.A.P. 038-635-001 (CSAH 35) & 038-630-001 (CSAH 30) & 038-620-010 (CSAH 20)
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 LAKE COUNTY, MINNESOTA
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ITEM NO.	SPEC. ITEM NUMBER	ITEM DESCRIPTION	APPROX.		UNIT	
			QUANT.	UNIT	PRICE	AMOUNT
32	2118.507	AGGREGATE SURFACING (CV) CLASS 5	128	CY	\$50.00	\$6,400.00
33	2123.51	MOTOR GRADER (HAUL ROAD)	40	HR	\$220.00	\$8,800.00
34	2123.602	SUBSURFACE INVESTIGATION (POTHOLE UTILITY)	3	EA	\$2,025.00	\$6,075.00
35	2123.61	STREET SWEEPER (WITH PICKUP BROOM)	40	HR	\$175.00	\$7,000.00
36	2123.61	SKID LOADER	40	HR	\$200.00	\$8,000.00
37	2211.507	AGGREGATE BASE (CV) CLASS 5	4,243	CY	\$38.00	\$161,234.00
38	2231.604	BITUMINOUS PATCH SPECIAL (3.5")	245	SY	\$66.00	\$16,170.00
39	2231.604	BITUMINOUS PATCH SPECIAL (5.5")	70	SY	\$168.00	\$11,760.00
40	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	768	GAL	\$2.00	\$1,536.00
41	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) 1.5" THICK	1,058	TON	\$93.00	\$98,394.00
42	2360.509	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,C) 2" THICK	2,102	TON	\$81.00	\$170,262.00
43	2402.503	PIPE RAILING	118	LF	\$125.00	\$14,750.00
44	2402.603	SALVAGE & INSTALL METAL RAILING	40	LF	\$125.00	\$5,000.00
45	2411.618	CONCRETE STEP DESIGN SPECIAL	278	SF	\$42.00	\$11,676.00
46	2411.618	MODULAR BLOCK RETAINING WALL	371	SF	\$112.00	\$41,552.00
47	2502.503	6" PERF PVC PIPE DRAIN	4,138	LF	\$14.00	\$57,932.00
48	2502.602	CONNECT TO EXISTING STRUCTURE (STORM) - (SKUNK CREEK TUNNE	1	EA	\$10,500.00	\$10,500.00
49	2502.602	6" PVC PIPE DRAIN CLEANOUT	9	EA	\$530.00	\$4,770.00
50	2502.618	4" INSULATION	600	SF	\$2.25	\$1,350.00
51	2503.503	12" RC PIPE SEWER DES 3006 CLASS III	159	LF	\$70.00	\$11,130.00
52	2503.503	15" RC PIPE SEWER DES 3006 CLASS III	92	LF	\$75.00	\$6,900.00
53	2503.503	18" RC PIPE SEWER DES 3006 CLASS III	165	LF	\$71.00	\$11,715.00
54	2503.503	24" RC PIPE SEWER DES 3006 CLASS III	28	LF	\$100.00	\$2,800.00
55	2503.503	42" RC PIPE SEWER DES 3006 CLASS III	439	LF	\$195.00	\$85,605.00
56	2503.601	PUMPING (SANITARY BYPASS)	1	LS	\$5,500.00	\$5,500.00
57	2503.602	TRENCH EXCAVATION (RESTRICTIVE)	2	EA	\$2,500.00	\$5,000.00
58	2503.602	CONNECT TO EXISTING STORM SEWER	1	EA	\$1,200.00	\$1,200.00
59	2503.602	CONNECT TO EXISTING SANITARY SEWER	6	EA	\$1,100.00	\$6,600.00
60	2503.602	CONNECT TO EXISTING SANITARY SEWER SERVICE	72	EA	\$400.00	\$28,800.00
61	2503.602	CONNECT TO EXISTING STRUCTURE (STORM DRAIN)	2	EA	\$700.00	\$1,400.00
62	2503.602	8"X6" WYE	72	EA	\$350.00	\$25,200.00
63	2503.603	6" PVC SANITARY SERVICE PIPE	2,537	LF	\$53.50	\$135,729.50

SCHEDULE OF UNIT PRICES

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ITEM NO.	SPEC. ITEM NUMBER	ITEM DESCRIPTION	APPROX.		UNIT	
			QUANT.	UNIT	PRICE	AMOUNT
64	2503.603	2" HDPE FORCE MAIN	20	LF	\$65.00	\$1,300.00
65	2503.603	8" PVC PIPE SEWER	2,328	LF	\$58.00	\$135,024.00
66	2503.603	VIDEO TAPE PIPE SEWER	2,328	LF	\$1.50	\$3,492.00
67	2504.601	TEMPORARY WATER SERVICE	1	LS	\$105,000.00	\$105,000.00
68	2504.602	CONNECT TO EXISTING WATER MAIN	12	EA	\$2,500.00	\$30,000.00
69	2504.602	CONNECT TO EXISTING WATER SERVICE	73	EA	\$415.00	\$30,295.00
70	2504.602	HYDRANT	8	EA	\$6,300.00	\$50,400.00
71	2504.602	4" GATE VALVE & BOX	1	EA	\$1,750.00	\$1,750.00
72	2504.602	6" GATE VALVE & BOX	19	EA	\$2,000.00	\$38,000.00
73	2504.602	WATERMAIN OFFSET	1	EA	\$4,700.00	\$4,700.00
74	2504.602	0.75" CORPORATION STOP	72	EA	\$350.00	\$25,200.00
75	2504.602	0.75" CURB STOP & BOX	72	EA	\$550.00	\$39,600.00
76	2504.602	VALVE BOX (WATER SERVICES IN PAVEMENT)	5	EA	\$180.00	\$900.00
77	2504.603	4" WATERMAIN DUCTILE IRON CL 52	44	LF	\$105.00	\$4,620.00
78	2504.603	6" WATERMAIN DUCTILE IRON CL 52	2,673	LF	\$71.00	\$189,783.00
79	2504.603	12" WATERMAIN DUCTILE IRON CL 52	36	LF	\$142.00	\$5,112.00
80	2504.603	3/4" TYPE K COPPER PIPE	2,080	LF	\$36.50	\$75,920.00
81	2504.608	WATERMAIN FITTINGS	1,257	LB	\$15.00	\$18,855.00
82	2506.502	CASTING ASSEMBLY	26	EA	\$800.00	\$20,800.00
83	2506.502	ADJUST FRAME & RING CASTING	12	EA	\$600.00	\$7,200.00
84	2506.602	CASTING ASSEMBLY SPECIAL (CLEANOUT IN PAVEMENT)	4	EA	\$290.00	\$1,160.00
85	2506.602	REPAIR DRAINAGE STRUCTURE - TUNNEL EXISTING STORM INLETS	2	EA	\$615.00	\$1,230.00
86	2506.602	CONCRETE COLLAR (VALVE BOX)	19	EA	\$530.00	\$10,070.00
87	2506.602	CONCRETE COLLAR (MANHOLE)	12	EA	\$1,510.00	\$18,120.00
88	2506.603	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4022	10	LF	\$680.00	\$7,004.00
89	2506.603	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60-4022	34	LF	\$950.00	\$31,920.00
90	2506.603	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL (R-1)	28	LF	\$610.00	\$16,897.00
91	2506.603	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1 (4007)	128	LF	\$500.00	\$64,000.00
92	2521.518	4" CONCRETE WALK	24,387	SF	\$4.75	\$115,838.25
93	2521.518	6" CONCRETE WALK	13,243	SF	\$6.50	\$86,079.50
94	2531.503	CONCRETE CURB & GUTTER DESIGN B618	3,101	LF	\$18.50	\$57,368.50
95	2531.503	CONCRETE CURB & GUTTER DESIGN B624	3,840	LF	\$19.75	\$75,840.00

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ITEM NO.	SPEC. ITEM NUMBER	ITEM DESCRIPTION	APPROX.		UNIT	
			QUANT.	UNIT	PRICE	AMOUNT
96	2531.504	7" CONCRETE DRIVEWAY PAVEMENT	451	SY	\$67.00	\$30,217.00
97	2531.504	8" CONCRETE DRIVEWAY PAVEMENT	162	SY	\$73.00	\$11,826.00
98	2531.603	CONCRETE CURB DESIGN V	310	LF	\$19.00	\$5,890.00
99	2531.618	TRUNCATED DOMES	486	SF	\$33.00	\$16,038.00
100	2557.603	INSTALL FENCE (SALVAGED)	226	LF	\$24.00	\$5,424.00
101	2563.601	TRAFFIC CONTROL	1	LS	\$12,650.00	\$12,650.00
102	2564.502	INSTALL SIGN	44	EA	\$150.00	\$6,600.00
103	2564.518	SIGN PANELS TYPE C	161	SF	\$36.00	\$5,778.00
104	2564.618	SIGN TYPE SPECIAL	60	SF	\$28.00	\$1,680.00
105	2573.501	STABILIZED CONSTRUCTION EXIT	1	LS	\$8,500.00	\$8,500.00
106	2573.502	STORM DRAIN INLET PROTECTION	21	EA	\$200.00	\$4,200.00
107	2573.503	SILT FENCE, TYPE MS	550	LF	\$6.50	\$3,575.00
108	2573.603	SEDIMENT CONTROL LOG (BIOROLL)	196	LF	\$12.50	\$2,450.00
109	2573.601	EROSION AND TURF SUPERVISOR	1	LS	\$5,500.00	\$5,500.00
110	2573.503	SEDIMENT CONTROL LOG TYPE ROCK	72	LF	\$9.50	\$684.00
111	2574.507	COMMON TOPSOIL BORROW (LV)	715	CY	\$42.00	\$30,030.00
112	2574.507	COMPOST GRADE 2 (LV)	179	CY	\$85.00	\$15,215.00
113	2574.508	FERTILIZER TYPE 3	266	LB	\$2.50	\$665.00
114	2575.504	EROSION CONTROL BLANKETS CATEGORY 3N	313	SY	\$3.25	\$1,017.25
115	2575.504	SODDING TYPE LAWN	100	SY	\$15.50	\$1,550.00
116	2575.505	SEEDING	1	AC	\$350.00	\$465.50
117	2575.508	HYDRAULIC BONDED FIBER MATRIX	4,655	LB	\$2.55	\$11,870.25
118	2575.523	WATER (IRRIGATION TURF ESTABLISHMENT)	100	MGAL	\$200.00	\$20,000.00
119	2575.508	SEED MIXTURE 25-151	159	LB	\$6.10	\$967.16
120	2575.508	SEED MIXTURE 33-361	1	LB	\$125.00	\$131.25
121	2575.523	RAPID STABILIZATION METHOD 3	12	MGAL	\$1,600.00	\$19,200.00
122	2582.503	4" DOUBLE SOLID LINE PAINT GROUND IN	1,240	LF	\$5.00	\$6,200.00
123	2582.503	6" SOLID LINE PAINT GROUND IN	1,980	LF	\$4.00	\$7,920.00
124	2582.503	24" SOLID LINE PAINT GROUND IN	12	LF	\$20.00	\$240.00
TOTAL BASE BID: \$					\$3,216,620.04	

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ITEM NO.	SPEC. ITEM NUMBER	ITEM DESCRIPTION	APPROX.		UNIT	
			QUANT.	UNIT	PRICE	AMOUNT
*ADD ALTERNATE 1: MINNEHAHA SCHOOL 5TH AVENUE PARKING (SEE NOTE BELOW)						
125	2105.504	GEOTEXTILE FABRIC TYPE 5	422	SY	\$1.50	\$633.00
126	2106.507	SELECT GRANULAR EMBANKMENT (CV)	151	CY	\$23.00	\$3,473.00
127	2211.507	AGGREGATE BASE (CV) CLASS 5	107	CY	\$38.00	\$4,066.00
128	2231.604	BITUMINOUS PATCH SPECIAL (3.5")	-6	SY	\$66.00	-\$396.00
129	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	4	GAL	\$2.00	\$8.00
130	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) 1.5" THICK	6	TON	\$93.00	\$558.00
131	2360.509	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,C) 2" THICK	8	TON	\$81.00	\$648.00
132	2531.503	CONCRETE CURB & GUTTER DESIGN B624	60	LF	\$19.75	\$1,185.00
133	2531.504	8" CONCRETE DRIVEWAY PAVEMENT	62	SY	\$73.00	\$4,526.00
134	2531.604	8" CONCRETE VALLEY GUTTER	115	SY	\$75.00	\$8,625.00
135	2531.618	TRUNCATED DOMES	12	SF	\$33.00	\$396.00
136	2574.507	COMMON TOPSOIL BORROW (LV)	-11	CY	\$42.00	-\$462.00
137	2574.508	FERTILIZER TYPE 3	-4	LB	\$2.50	-\$10.00
138	2575.505	SEEDING	-0.02	AC	\$350.00	-\$7.00
139	2575.508	SEED MIXTURE 25-151	-2.4	LB	\$6.10	-\$14.64
140	2575.523	RAPID STABILIZATION METHOD 3	-0.2	MGAL	\$1,600.00	-\$320.00
141	2582.503	4" SOLID LINE PAINT GROUND IN	427	LF	\$5.00	\$2,135.00
142	2582.602	PAVEMENT MESSAGE PAINT GROUND IN	1	EA	\$202.00	\$202.00
TOTAL BID ADD ALTERNATE 1: \$						\$25,245.36
ADD ALTERNATE 2: LAKE COUNTY SWCD STORMWATER TREATMENT						
143	2506.602	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 3	1	EA	\$18,850.00	\$18,850.00
144	2506.602	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 4	1	EA	\$18,501.00	\$18,501.00
145	2506.603	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4022	-4.2	LF	\$680.00	-\$2,856.00
146	2506.603	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL (R-1)	-4.1	LF	\$610.00	-\$2,501.00
TOTAL BID ADD ALTERNATE 2: \$						\$31,994.00
TOTAL BASE BID + ADD ALTERNATE 1 & 2: \$						\$3,273,859.40

Note to clarify ALTERNATE Bid Items:
 Schedule of Estimated Quantity items that do not show on Electronic Bid Form are repeat items from the base bid. These alternate items are increase/decrease quantity from the project base bid and will be constructed at the unit price as stated in the base bid.
 Add Alternate 1 has three additional bid items #134, #141 and #142 which are not part of project base bid. The Contractor is required to place a unit price for these items for the Owner to evaluate and consider if this alternative will be added to the project scope.
 Add Alternate 2 has two additional bid items #143 and #144 which not part of project base bid. The Contractor is required to place a unit price for these items for the Owner to evaluate and consider if this alternative will be added to the project scope.

**ATTACHMENT A
PRIME CONTRACTOR RESPONSE**

RESPONSIBLE CONTRACTOR VERIFICATION AND CERTIFICATION OF COMPLIANCE

STATE PROJECT NUMBER: _____

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 response to this solicitation. A response received without this form, will be rejected.

<p>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...</p>	
<p>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:</p>	
<p>(1)</p>	<p>The Contractor:</p> <ul style="list-style-type: none"> (i) is in compliance with workers' compensation and unemployment insurance requirements; (ii) is in compliance with Department of Revenue and Department of Employment and Economic Development registration requirements if it has employees; (iii) has a valid federal tax identification number or a valid Social Security number if an individual; and (iv) has filed a certificate of authority to transact business in Minnesota with the Secretary of State if a foreign corporation or cooperative.
<p>(2)</p>	<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, 181.13, 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"> (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; (ii) has been issued an order to comply by the commissioner of Labor and Industry that has become final; (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; (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; (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 (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;*

(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.

ATTACHMENT A-1

FIRST-TIER SUBCONTRACTORS LIST

SUBMIT PRIOR TO EXECUTION OF A CONSTRUCTION CONTRACT

STATE PROJECT NUMBER: _____

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.

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

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

SUPPLEMENTAL CERTIFICATION FOR ATTACHMENT A-1	
<p>By signing this document I certify that I am an owner or officer of the company, and I certify under oath that:</p> <p>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.</p>	
Authorized Signature of Owner or Officer:	Printed Name:
Title:	Date:
Company Name:	

ATTACHMENT A-2

ADDITIONAL SUBCONTRACTORS LIST

PRIME CONTRACTOR TO SUBMIT AS SUBCONTRACTORS ARE ADDED TO THE PROJECT

STATE PROJECT NUMBER: _____

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. ...

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

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

SUPPLEMENTAL CERTIFICATION FOR ATTACHMENT A-2	
<p>By signing this document I certify that I am an owner or officer of the company, and I certify under oath that:</p> <p>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.</p>	
Authorized Signature of Owner or Officer:	Printed Name:
Title:	Date:
Company Name:	

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NON-COLLUSION AFFIDAVIT

The following Non-Collusion Affidavit shall be executed by the bidder:

State Project No. _____

Federal Project No. _____

State of Minnesota _____)

) ss

County of _____)

I, _____, do state under penalty of
(name of person signing this affidavit)

perjury under 28 U.S.C. 1746 of the laws of the United States:

(1) that I am the authorized representative of _____

(name of person, partnership or corporation submitting this proposal)

and that I have the authority to make this affidavit for and on behalf of said bidder;

(2) that, in connection with this proposal, the said bidder has not either directly or indirectly entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding;

(3) that, to the best of my knowledge and belief, the contents of this proposal have not been communicated by the bidder or by any of his/her employees or agents to any person who is not an employee or agent of the bidder or of the surety on any bond furnished with the proposal and will not be communicated to any person who is not an employee or agent of the bidder or of said surety prior to the official opening of the proposal, and

(4) that I have fully informed myself regarding the accuracy of the statements made in this affidavit.

Signed: _____
(bidder or his authorized representative)

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BID BOND

Bidder Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: Lake County Address <i>(principal place of business)</i> : 616 3 rd Avenue, Two Harbors, MN 55606-1504	Bid Project <i>(name and location)</i> : 2021 Street & Utility Improvements: SAP 038-630-001, SAP 038-635-001, SAP 038-620-010 - Lake County, MN <u>Bid Due Date: April 6, 2021</u>
Bond Penal Sum: Date of Bond:	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
<i>(Full formal name of Bidder)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i>	

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder will occur 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 shall 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.

Items to Be Executed After Bid Opening

for

2021 Street & Utility Improvements

SAP 038-630-001

SAP 038-635-001

SAP 038-620-010

City Streets: 4th Ave., 5th Ave. & 6th Ave.

Lake County & City of Two Harbors

Lake County, MN

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INFORMATION REQUESTED FROM THE LOW BIDDER

**(The Low Bidder May Be Requested to Provide This Information After
The Bids Are Received But Prior to Issuing The Notice Of Award)**

GENERAL INFORMATION

The low bidder is requested to furnish the following information. Additional sheets shall be attached as required.

Contractor's name and address: _____

Number of years as a Contractor in construction work of this type _____

Names and titles of all officers of Contractor's firm: _____

SUBMIT a list of-three (3) construction contracts completed by the Contractor during the last five years involving work of similar type and comparable value. The list shall include the following information as a minimum:

- Name, address and telephone number of owner.
- Name of project.
- Location of project.
- Brief description of the work involved.
- Contract amount.
- Date of completion of contract.
- Name, address and telephone number of architect or engineer.
- Name of owner's project engineer.

EQUIPMENT/MATERIAL SOURCE INFORMATION

The low bidder is requested to list the name of the manufacturer or supplier and catalog numbers of the equipment or material proposed to be furnished under the bid. Awarding of a contract under this bid will not imply approval by the Owner of the manufacturers or suppliers listed by the low bidder.

Plant Mix Bituminous
Water & Sanitary Sewer Pipe & Appurtenances
Precast Concrete Pipe
Manholes & Catch Basins
Manhole & Catch Basin Castings

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

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NOTICE OF AWARD

Date of Issuance:

Owner: Lake County
Lake County, MN

Owner's Contract No.:

Engineer: Jason DiPiazza, P.E.

Engineer's Project No.: U17.120606 & N16.121170

Project: 2021 Street & Utility Improvements: SAP 038-630-001, SAP 038-635-001, SAP 038-620-010

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 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.

Five (5) 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 three counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security and insurance documentation, as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Deliver to Owner executed SECTION – C-515 RESPONSIBLE CONTRACTOR NOTICE OF AWARD AND SECTION C-520 SUPPLEMENTAL CONTRACTOR VERIFICATION OF COMPLIANCE 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 ten 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: Lake County, Lake County, MN

By (signature)

Name (printed)

Title:

Copy: Engineer

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RESPONSIBLE CONTRACTOR - NOTICE OF AWARD

SUPPLEMENTAL CONTRACTOR VERIFICATION OF COMPLIANCE

PROJECT TITLE: 2021 Street & Utility Improvements: SAP 038-630-001, SAP 038-635-001, SAP 038-620-010

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

My company meets each of the minimum criteria of Minn. Stat. § 16C.285, subd. 3, the Responsible Contractor statute.

Pursuant to Stat. § 16C.285, subd. 3(7), my company has obtained from all subcontractors and 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 subcontractor or motor carrier.

The undersigned agrees that, if it retains additional subcontractors on the project after submitting its verification of compliance, it 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 Minn. Stat. § 16C.285, subd. 3(7), within 14 days of retaining the additional subcontractors.

Upon request, the undersigned shall submit to the contracting authority copies of the signed verifications of compliance from all subcontractors of any tier and all motor carriers providing for-hire transportation of materials, equipment, or supplies for a project.

The undersigned understands that a failure to meet or verify compliance with the minimum criteria established for a “responsible contractor” as defined in Minn. Stat. § 16C.285, subd. 3, renders a bidder ineligible to be awarded a construction contract for the Project or to perform work on the Project.

The undersigned understands that a false statement under oath verifying compliance with any of the minimum criteria shall make the undersigned, ineligible to be awarded a construction project and may result in termination of a contract awarded to the undersigned. 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.

Supplemental Contractor Verification of Compliance - 2021 Street & Utility Improvements: SAP 038-630-001, SAP 038-635-001, SAP 038-620-010	
Authorized Signature of Owner or Officer:	Printed Name:
Title:	Date:
Company Name:	

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RESPONSIBLE CONTRACTOR - SUPPLEMENTAL

ADDITIONAL SUBCONTRACTORS LIST

PRIME CONTRACTOR TO SUBMIT AS SUBCONTRACTORS ARE ADDED TO THE PROJECT

PROJECT TITLE: 2021 Street & Utility Improvements: SAP 038-630-001, SAP 038-635-001, SAP 038-620-010

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.

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

Additional Subcontractors List - 2021 Street & Utility Improvements: SAP 038-630-001, SAP 038-635-001, SAP 038-620-010	
By signing this Document I certify that I am an owner or officer of the company, and I swear under oath that: All additional subcontractors listed on this form have been 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.	
Authorized Signature of Owner or Officer:	Printed Name:
Title:	Date:
Company Name:	

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

This Agreement is by and between Lake County (“Owner”) and _____ (“Contractor”).

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

Owner and Contractor hereby agree as follows:

ARTICLE 1 — WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: 2021 Street & Utility Improvements: SAP 038-630-001, SAP 038-635-001, SAP 038-620-010

ARTICLE 2 —THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows:
Reconstruction of Streets and Utilities: sanitary sewer, watermain and storm sewer replacement on nine (9) individual blocks, including four (4) blocks County State Aid Roads and five (5) City Avenues as indicated on the project Drawings.

ARTICLE 3 — ENGINEER

- 3.01 The Project that pertains to the Work has been designed by Bolton & Menk, Inc.
- 3.02 The Owner (Lake County) will serve as Contract Administrator and Owner’s representative (“Engineer”) for the County Road portions of the project, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.
- 3.03 The Project Co-Owner (City of Two Harbors) has retained Bolton & Menk, Inc. (“Engineer”) to act as Co-Owner’s representative for the City Avenues and Public Utilities within the project, assume all duties and responsibilities of Engineer, reporting to the Contract Administrator (Lake County).

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, bituminous paving, and concrete paving.
 4. Shall include, but not limited to the following:

- a. All Concrete Work
- b. Installation of Final Turf Restoration and Permanent Erosion Control
- c. Placement of Final Lift of Non-Wear Bituminous Pavement

4.03 Contract Times: Dates

- A. Construction shall begin as soon as practical following execution of contracts and holding of the pre-construction conference. Anticipated start date for construction is approximately May 10, 2021.
- B. Substantial Completion:
 - 1. Contractor agrees prep work can be done (tree removal, etc.) but the pavement, sidewalk and streets shall remain open for traffic on streets fronting the Minnehaha School (School Loop Phase) until after school summer recess begins, anticipated date of **June 11, 2021**, and be substantially complete on or before **August 20, 2021**.
 - 2. Contractor agrees the Work on the County Roads (CSAH 30, CSAH 35 and CSAH 20) shall be substantially complete on or before **October 1, 2021**.
 - 3. All streets with existing pavement surfacing disturbed in 2021 shall be substantially completed (Non-Wear Bituminous Pavement Placed) prior to close of 2021 construction. No streets shall remain as gravel surfaced over the winter, unless that street was existing gravel surfaced prior to the Project.
- C. Milestones: Parts of the Work shall be completed in accordance with the following:
 - 1. Milestone 1: From removal of pavement surfacing until placement of aggregate base on any individual segment identified below in paragraphs 4.03.C.1.a-f:

a. North 8 th St. Phase (5 th Ave. to 7 th Ave.)	30 calendar days.
b. School Loop Phase (4 th Ave., 8 th St. and 5 th Ave.)	35 calendar days.
c. 6 th Ave. (east of 8 th St.)	25 calendar days.
d. 6 th Ave. (west of 8 th St.)	25 calendar days.
e. 5 th Ave. (west of 8 th St.)	25 calendar days.
f. 4 th Ave. (west of 8 th St.)	25 calendar days.
 - 2. Milestone 2: From placement of aggregate base until placement of first lift bituminous pavement, including curb & gutter, valley gutter, and/or aprons, on any individual segment identified in 4.03.C.1.a-f:

a. All segments	28 calendar days.
-----------------	-------------------
 - 3. Milestone 3: From placement of first lift bituminous pavement until completion of turf restoration installation, including topsoil, compost top dressing, seeding, fertilizing and mulch, or sod, on any individual segment identified in 4.03.C.1.a-f:

a. All segments	15 calendar days.
-----------------	-------------------
- D. Final Completion:
 - 1. Contractor agrees the Work on the County Roads (CSAH 30, CSAH 35 and CSAH 20) shall be complete and ready for final acceptance on or before **October 15, 2021**.
 - 2. **October 15, 2021** shall also be the date by which all work shall be complete and ready for final acceptance on 5th Avenue from 7th Street to 8th Street.

3. Contractor agrees all remaining project Work will be completed, final inspection list completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before **August 1, 2022**.

4.04 Liquidated Damages

- A. Contractor accepts the provisions of the Agreement as to liquidated damages.
- B. 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 compensate Owner \$1,000.00 for each calendar 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. Milestones: Contractor shall compensate Owner \$500.00 for each calendar day that expires after the times (as duly adjusted pursuant to the Contract) specified in Paragraph 4.03.C above for achievement of any individual Milestone, until that Milestone is achieved.
 - a. For each street segment identified in 4.03.C, from the start of Work to turf restoration (Milestone 1 through Milestone 3) calendar days shall be counted consecutively beginning upon the start of Work on that segment. Exceeding the allowable days on an individual Milestone will result in a reduction of allowable days for the subsequent Milestone equal to the number of days by which the preceding Milestone was exceeded.
 - b. Completion of an individual Milestone in fewer than the allowable number of days will not result in an increase to the allowable number of days for the subsequent Milestone.
 3. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall compensate Owner \$300.00 for each calendar day that expires after such time until the Work is completed and ready for final payment.
 4. Liquidated damages for failing to timely attain Substantial Completion, Milestones, and Final Completion are not additive and will not be imposed concurrently.
- C. 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.

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 account of the Contract Price on the basis of Contractor's Applications for Payment during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.
 - a. 95% percent of the value of the Work completed (with the balance being retainage).
 - b. No compensation will be paid for materials and equipment delivered to Site and not incorporated in the Work.
- B. Within 60 days of the date of Project 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 (250%) 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 Consent of Surety

- A. Owner will not make final payment or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

6.05 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.

ARTICLE 7 —INTEREST

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

ARTICLE 8 —CONTRACT DOCUMENTS

8.01 Contents

- A. The Contract Documents consist of all of the following:
 1. This Agreement.
 2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
 3. General Conditions.
 4. Supplementary Conditions.
 5. Division A: Labor and Wages:
 - a. City of Two Harbors Standard Government Entity Construction Contract Provisions.
 - b. Project Labor Agreement.
 - c. Wage Rates & Prevailing Wages.
 6. Specifications as listed in the table of contents of the project manual (copy of list attached).
 7. Appendix C: MnDOT Special Provisions.
 8. Drawings as listed in the table of contents of the project manual (copy of list attached.)
 9. Addenda (numbers ___ to ___, inclusive).
 10. Exhibits to this Agreement (enumerated as follows):

- a. Contractor's Bid (pages ___ to ___, inclusive).
 - b. Executed Responsible Contractor
 - c. Executed Section C-515 – Responsible Contractor – Award Attachment
11. 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.
- B. The Contract Documents listed in Paragraph 8.01.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 8.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 9 — REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

9.01 Contractor's Representations

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
 6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
 7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are

necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

9.02 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.

9.03 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.

ARTICLE 10 – MISCELLANEOUS

10.01 Terms

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

10.02 Assignment of Contract

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto 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 Documents.

10.03 *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.

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall 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.

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:

Lake County

(typed or printed name of organization)

(typed or printed name of organization)

By:

(individual's signature)

By:

(individual's signature)

Date:

(date signed)

Date:

(date signed)

Name:

(typed or printed)

Name:

(typed or printed)

Title:

(typed or printed)

Title:

(typed or printed)

(If 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:

616 3rd Avenue

Two Harbors, MN, 55606-1504

Address for giving notices:

Designated Representative:

Name:

Jason DiPiazza

(typed or printed)

Designated Representative

Name:

(typed or printed)

Title:

County Engineer

(typed or printed)

Title:

(typed or printed)

Address:

1513 Hwy 2

Two Harbors, MN 55616

Address:

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NOTICE TO PROCEED

Owner: Lake County Owner's Project No.: U17.120606 & N16.121170
Engineer: Jason DiPiazza, P.E., Lake County Engineer Engineer's Project No.: N16.121170
Contractor: _____ Contractor's Project No.: _____
Project: 2021 Street & Utility Improvements
Contract Name: SAP 038-630-001, 038-635-001, 038-620-010, City Streets: 4th Ave., 5th Ave. & 6th Ave.
Effective Date of Contract: _____

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on **[date Contract Times are to start]** 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: provide and executed Project Labor Agreement to the Owner

Owner: Lake County, MN
By (signature): _____
Name (printed): _____
Title: _____
Date Issued: _____

Copy: Engineer

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PERFORMANCE BOND

<p>Contractor</p> <p>Name: _____</p> <p>Address (principal place of business): _____</p>	<p>Surety</p> <p>Name: _____</p> <p>Address (principal place of business): _____</p>
<p>Owner</p> <p>Name: Lake County, MN</p> <p>Mailing address (principal place of business): 616 3rd Avenue, Two Harbors, MN 55606-1504</p>	<p>Contract</p> <p>Description (name and location): 2021 Street & Utility Improvements: SAP 038-630-001, SAP 038-635-001, SAP 038-620-010 – Lake County, MN</p> <p>Contract Price: _____</p> <p>Effective Date of Contract: _____</p>
<p>Bond</p> <p>Bond Amount: _____</p> <p>Date of Bond: _____ (Date of Bond cannot be earlier than Effective Date of Contract)</p> <p>Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16</p>	
<p>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.</p>	
<p>Contractor as Principal</p> <p>_____</p> <p><i>(Full formal name of Contractor)</i></p>	<p>Surety</p> <p>_____</p> <p><i>(Full formal name of Surety) (corporate seal)</i></p>
<p>By: _____ <i>(Signature)</i></p>	<p>By: _____ <i>(Signature)(Attach Power of Attorney)</i></p>
<p>Name: _____ <i>(Printed or typed)</i></p>	<p>Name: _____ <i>(Printed or typed)</i></p>
<p>Title: _____</p>	<p>Title: _____</p>
<p>Attest: _____ <i>(Signature)</i></p>	<p>Attest: _____ <i>(Signature)</i></p>
<p>Name: _____ <i>(Printed or typed)</i></p>	<p>Name: _____ <i>(Printed or typed)</i></p>
<p>Title: _____</p>	<p>Title: _____</p>
<p>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.</p>	

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**

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PAYMENT BOND

<p>Contractor</p> <p>Name: _____</p> <p>Address (<i>principal place of business</i>): _____</p>	<p>Surety</p> <p>Name: _____</p> <p>Address (<i>principal place of business</i>): _____</p>
<p>Owner</p> <p>Name: Lake County, MN</p> <p>Mailing address (<i>principal place of business</i>): 616 3rd Avenue, Two Harbors, MN 55606-1504</p>	<p>Contract</p> <p>Description (<i>name and location</i>): 2021 Street & Utility Improvements: SAP 038-630-001, SAP 038-635-001, SAP 038-620-010 – Lake County, MN</p> <p>Contract Price: _____</p> <p>Effective Date of Contract: _____</p>
<p>Bond</p> <p>Bond Amount: _____</p> <p>Date of Bond: _____ <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i></p> <p>Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 18</p>	
<p>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.</p>	
<p>Contractor as Principal</p> <p>_____ <i>(Full formal name of Contractor)</i></p> <p>By: _____ <i>(Signature)</i></p> <p>Name: _____ <i>(Printed or typed)</i></p> <p>Title: _____</p> <p>Attest: _____ <i>(Signature)</i></p> <p>Name: _____ <i>(Printed or typed)</i></p> <p>Title: _____</p>	<p>Surety</p> <p>_____ <i>(Full formal name of Surety) (corporate seal)</i></p> <p>By: _____ <i>(Signature)(Attach Power of Attorney)</i></p> <p>Name: _____ <i>(Printed or typed)</i></p> <p>Title: _____</p> <p>Attest: _____ <i>(Signature)</i></p> <p>Name: _____ <i>(Printed or typed)</i></p> <p>Title: _____</p>
<p><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></p>	

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**

General Conditions

for

Edition C-700 EJCDC - 2018

2021 Street & Utility Improvements

SAP 038-630-001

SAP 038-635-001

SAP 038-620-010

City Streets: 4th Ave., 5th Ave. & 6th Ave.

Lake County & City of Two Harbors

Lake County, MN

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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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GUIDELINES FOR USE OF EJCDC® C-700, STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

1.0 PURPOSE AND INTENDED USE OF THE DOCUMENT

EJCDC® C-700, Standard General Conditions of the Construction Contract (2018), is the foundation document for the EJCDC Construction Series. The General Conditions define the basic rights, responsibilities, risk allocations, and contractual relationship of the Owner and Contractor, and establish how the Contract is to be administered.

2.0 OTHER DOCUMENTS

EJCDC documents are intended to be used as a system and changes in one EJCDC document may require a corresponding change in other documents. Other EJCDC documents may also serve as a reference to provide insight or guidance for the preparation of this document.

These General Conditions have been prepared for use with either EJCDC® C-520, Agreement Between Owner and Contractor for Construction Contract (Stipulated Price), or EJCDC® C-525, Agreement Between Owner and Contractor for Construction Contract (Cost-Plus-Fee) (2018 Editions). The provisions of the General Conditions and the Agreement are interrelated, and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC® C-800, Supplementary Conditions of the Construction Contract (2018).

The full EJCDC Construction series of documents is discussed in the EJCDC® C-001, Commentary on the 2018 EJCDC Construction Documents (2018).

3.0 ORGANIZATION OF INFORMATION

All parties involved in a construction project benefit significantly from a standardized approach in the location of subject matter throughout the documents. Experience confirms the danger of addressing the same subject matter in more than one location; doing so frequently leads to confusion and unanticipated legal consequences. Careful attention should be given to the guidance provided in EJCDC® N-122/AIA® A521, Uniform Location of Subject Matter (2012 Edition) when preparing documents. EJCDC® N-122/AIA® A521 is available at no charge from the EJCDC website, www.ejcdc.org, and from the websites of EJCDC's sponsoring organizations.

If CSI MasterFormat™ is used for organizing the Project Manual, consult CSI MasterFormat™ for the appropriate document number (e.g., under 00 11 00, Advertisements and Invitations), and accordingly number the document and its pages.

4.0 EDITING THIS DOCUMENT

Remove these Guidelines for Use. Some users may also prefer to remove the two cover pages.

Although it is permissible to revise the Standard EJCDC Text of C-700 (the content beginning at page 1 and continuing to the end), it is common practice to leave the Standard EJCDC Text of C-700 intact and unaltered, with modifications and supplementation of C-700's provisions set forth in EJCDC® C-800, Supplementary Conditions of the Construction Contract (2018). If the Standard Text itself is revised, the

user must comply with the terms of the License Agreement, Paragraph 4.0, Document-Specific Provisions, concerning the tracking or highlighting of revisions. The following is a summary of the relevant License Agreement provisions:

1. The term “Standard EJCDC Text” for C-700 refers to all text prepared by EJCDC in the main body of the document. Document covers, logos, footers, instructions, or copyright notices are not Standard EJCDC Text for this purpose.
2. During the drafting or negotiating process for C-700, it is important that the two contracting parties are both aware of any changes that have been made to the Standard EJCDC Text. Thus, if a draft or version of C-700 purports to be or appears to be an EJCDC document, the user must plainly show all changes to the Standard EJCDC Text, using “Track Changes” (redline/strikeout), highlighting, or other means of clearly indicating additions and deletions.
3. If C-700 has been revised or altered and is subsequently presented to third parties (such as potential bidders, grant agencies, lenders, or sureties) as an EJCDC document, then the changes to the Standard EJCDC Text must be shown, or the third parties must receive access to a version that shows the changes.
4. Once the document is ready to be finalized (and if applicable executed by the contracting parties), it is no longer necessary to continue to show changes to the Standard EJCDC Text. The user may produce a final version of the document in a format in which all changes are accepted, and the document at that point does not need to include any “Track Changes,” redline/strikeout, highlighting, or other indication of additions and deletions to the Standard EJCDC Text.

5.0 LICENSE AGREEMENT

This document is subject to the terms and conditions of the **License Agreement, 2018 EJCDC® Construction Series Documents**. A copy of the License Agreement was furnished at the time of purchase of this document, and is available for review at www.ejcdc.org and the websites of EJCDC’s sponsoring organizations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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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 believe 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.

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Supplementary Conditions

for

Edition C-700 EJCDC® - 2018

2021 Street & Utility Improvements

SAP 038-630-001

SAP 038-635-001

SAP 038-620-010

City Streets: 4th Ave., 5th Ave. & 6th Ave.

Lake County & City of Two Harbors

Lake County, MN

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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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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 Delete Paragraph 1.01.42 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 (4) printed copies of the Contract Documents (including one fully signed counterpart of the Agreement), and [one copy] in electronic portable document format (PDF).
- B. The provisions of the General Conditions are modified to the extent the Contract shall be signed, and the Contract Bond delivered, in the offices of the Lake County Attorney, within ten (10) days, excluding Saturdays, Sundays and Holidays, after the bidder has been advised by telephone (Email) that the bid has been accepted subject to execution and approval of the Contract as required by law, and that notification thereof has been made by letter.

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

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

4.03.A. The OWNER will provide engineering surveys to establish reference points for construction as described in Section 01720, Field Engineering, of the Specifications.

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 Delete Paragraphs 5.03.A and 5.03.B in their entirety and insert the following:

5.03.A. The following reports of explorations or tests of subsurface conditions at or contiguous to the Site, or drawings of physical conditions relating to existing surface or subsurface structures at the Site, are known to Owner:

1. Soil borings and geotechnical reports:
 - a. Report dated April 21, 2020, prepared by BRAUN Intertec. entitled: Geotechnical Evaluation Report – Lake County CSAH 30, 35 and City of Two Harbors 2021 Street and Utility Improvements
 - b. Report dated December 28, 2020, prepared by BRAUN Intertec. entitled: Geotechnical Evaluation Report – 2021 Street Improvements – Two Harbors 4th, 5th, and 6th Avenue.
 - c. The “technical data” contained in such reports upon which Contractor may rely are those indicated in the definition of Technical Data in the General Conditions.

d. The subsurface conditions and ground water levels (or lack thereof) indicated in any soil boring log is only representative of the conditions present at the time the soil borings were taken and at the location of the respective soil boring. The soil conditions can be expected to vary in areas away from the soil boring locations and the ground water levels can be expected to vary in different location and seasonally.

2. Sanitary sewer televising videos and reports:

a. Owner (City of Two Harbors) has videos and/or log reports of televising inspections performed on most of the sanitary sewer within the project limits. Videos and log reports will be made available to bidders upon request. Videos and logs will be reviewed as necessary with Contractor after award of contract and in conjunction with the work. The “technical data” contained in such report upon which Contractor may rely are those indicated in the definition of Technical Data in the General Conditions.

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:

Report Title	Date of Report	Technical Data
GEOTECHNICAL EVALUATION REPORT	April 21, 2020	Soil Borings
GEOTECHNICAL EVALUATION REPORT	December 28, 2020	Soil Borings

G. Contractor may examine copies of reports and drawings identified in SC 5.03 that were not included with the Bidding Documents at 4690 Miller Trunk Highway, Suite 350, Duluth, MN 55811, (218) 729-5939 during regular business hours, or may request copies from Engineer.

5.06 Hazardous Environmental Conditions

SC 5.06 Delete subparagraphs 5.06.A.1 and 5.06.A.2 in their entirety and insert the following:

5.06.A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.

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 adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
MPCA Review: Hanson’s Power Equipment Site	February 18, 2016	Monitoring Report

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. The successful bidder shall furnish a payment bond equal to the contract amount and a performance bond equal to the contract amount as required by Minnesota Statutes, Section 574.26. The surety and form of the bonds shall be subject to the approval of the contracting authority.
2. The contracting authority shall require for all contracts less than or equal to Five Million dollars (\$5,000,000), that the aggregate liability of the payment and performance bonds shall be twice the amount of the contract. All contracts in excess of Five Million dollars (\$5,000,000) shall have an aggregate liability equal to the amount of the contract.
3. Required Performance Bond Form: The performance bond that Contractor furnishes will be in the form of EJCDC® C 610, Performance Bond (2018 edition).
4. Required Payment Bond Form: The payment bond that Contractor furnishes will be in the form of EJCDC® C 615, Payment Bond (2018 edition).

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

1. The correction period specified as one (1) year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be Two (2) years after final payment is approved by the Owner.
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 two (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 (Lake County), Co-Owner (City of Two Harbors) and Engineer the following: None
- E. Insurance provided by the Contractor shall satisfy the types and limits stated in Section 00802 – CITY OF TWO HARBORS STANDARD GOVERNMENTAL ENTITY CONSTRUCTION

CONTRACT PROVISIONS, Paragraph No. 4, or greater where required by Laws and Regulations.

- F. 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.

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

- G. 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 \$Not Applicable after accounting for partial attribution of its limits to underlying policies, as allowed above.

- H. 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.

Contractor’s Pollution Liability	Policy limits of not less than:
Each Occurrence/Claim	Not Applicable
General Aggregate	Not Applicable

If box is checked, Contractor is not required to provide Contractor’s Pollution Liability insurance under this Contract

- I. 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.

Contractor’s Professional Liability	Policy limits of not less than:
Each Claim	Not Applicable
Annual Aggregate	Not Applicable

- J. Railroad Protective Liability Insurance: No Supplementary Conditions in this Article.
- K. Unmanned Aerial Vehicle Liability Insurance: No Supplementary Conditions in this Article.
- L. Other Required Insurance: No Supplementary Conditions in this Article.

6.04 Builder's Risk or Other Property Insurance

SC 6.04 Add the following new Paragraph immediately after Paragraph 6.04.E:

- F. Builder's Risk and Other Property Insurance shall comply with Section 00802 – CITY OF TWO HARBORS STANDARD GOVERNMENT ENTITY CONSTRUCTION CONTRACT PROVISIONS, Paragraph No. 4.

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 as outlined in the project specifications.
2. Owner's legal holidays are: New Year's Day, January 1; Martin Luther King's Birthday, the third Monday in January; Memorial Day, the last Monday in May; Independence Day, July 4; Labor Day, the first Monday in September; Veterans Day, November 11; Thanksgiving Day, the fourth Thursday in November; and Christmas Day, December 25.

7.09 Permits

SC 7.09 The following Paragraph 7.09.B shall be added immediately after Paragraph 7.09.A:

7.09.B. If the OWNER has obtained, or has applied for, the necessary construction permits from any regulatory agencies, they will be addressed in Section 01410, Regulatory Requirements, of the Specifications. CONTRACTOR shall obtain and pay for all construction permits, licenses and bonds, not specifically highlighted as previously obtained, or applied for, in the referenced Section.

SC-7.12 RECORD DOCUMENTS

The following Paragraphs 7.12.B through 7.12.C shall be added immediately after Paragraph 7.12.A:

7.12.B. The purpose of the final Project Record Documents is to provide factual information regarding all aspects of the work, both concealed and visible, to enable future modification of the work to proceed without lengthy and expensive site measurement, investigation, and examination.

7.12.C. Prior to submitting a request for final payment, submit the final Project Record Documents to the Engineer and/or Owner for approval. Approval of the Record Documents shall not constitute final acceptance of the completed project.

SC-7.13 SAFETY AND PROTECTION

The following Paragraph 7.13.C.4 shall be added immediately after Paragraph 7.13.C.3:

7.13.C.4. 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 initiating, maintaining, and supervising all safety precautions and programs in connection with the Work.

SC-7.20 PROGRESS PAYMENTS TO SUBCONTRACTORS

Add the following Paragraph 7.20 immediately after Paragraph 7.19

7.20 Progress Payments to Subcontractors

- A. For contracts involving payment with public funds within the State of Minnesota, including but not limited to cities, counties, towns, school districts, political subdivisions or agencies of local government, within ten days after receipt of payment has been made to the Prime Contractor, the Prime Contractor shall make payment to all Subcontractors for undisputed services provided by the Subcontractor. The Prime Contractor shall pay interest of 1.5% per month or for any part of a month to the Subcontractor on any undisputed amount not paid on time to the Subcontractor. The minimum monthly interest penalty payment for an unpaid balance of \$100.00 or more is \$10.00 for an unpaid balance of less than \$100.00, the Prime Contractor shall pay the actual penalty due to the subcontractor. 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.

ARTICLE 8 —OTHER WORK AT THE SITE

SC-8.02 COORDINATION

Delete Paragraph 8.02.A and 8.02.B in its entirety and replace with the following:

8.02.A. Owner does not intend to contract with others for the performance of other work on the Project at the Site.

The City of Two Harbors will perform gas line relocation, electric line relocation and installation along with streetlight removals in coordination with Contractor performing project reconstruction work.

SC-8.04 CLAIMS BETWEEN CONTRACTORS

Add the following new paragraphs immediately after paragraph 8.03:

8.04 Claims Between Contractors

8.04.A. Should Contractor cause damage to the work or property of any other contractor at the Site, or should any claim arising out of Contractor's performance of the Work at the Site be made by any other contractor against Contractor, Owner, Engineer, or the construction coordinator, then Contractor (without involving Owner, Engineer, or construction coordinator) shall either (1) remedy the damage, (2) agree to compensate the other contractor for remedy of

the damage, or (3) remedy the damage and attempt to settle with such other contractor by agreement, or otherwise resolve the dispute by arbitration or at law.

8.04.B. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner, Engineer, the construction coordinator and the officers, directors, partners, employees, agents and other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages (including, but not limited to, fees and charges of engineers, architects, attorneys, and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any other contractor against Owner, Engineer, consultants, or the construction coordinator to the extent said claim is based on or arises out of Contractor's performance of the Work. Should another contractor cause damage to the Work or property of Contractor or should the performance of work by any other contractor at the Site give rise to any other Claim, Contractor shall not institute any action, legal or equitable, against Owner, Engineer, or the construction coordinator or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from Owner, Engineer, or the construction coordinator on account of any such damage or Claim.

8.04.C. If Contractor is delayed at any time in performing or furnishing the Work by any act or neglect of another contractor, and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a Claim for an extension of times in accordance with Article 12. An extension of the Contract Times shall be Contractor's exclusive remedy with respect to Owner, Engineer, and construction coordinator for any delay, disruption, interference, or hindrance caused by any other contractor. This paragraph does not prevent recovery from Owner, Engineer, or construction coordinator for activities that are their respective responsibilities.

ARTICLE 9 — OWNER'S RESPONSIBILITIES

9.13 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. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.
2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.

3. 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.
4. 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.
5. 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.
6. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
7. Shop Drawings and Samples:
 - a. Record date of receipt of Samples and Contractor-approved Shop Drawings.
 - b. Receive Samples which are furnished at the Site by Contractor and notify Engineer of availability of Samples for examination.
 - c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.
8. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.
9. 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. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

- c. Observe whether any Work in place appears to be defective.
- d. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.

10. 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.
- c. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.
- d. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.

11. Records:

- a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
- b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
- c. Maintain records for use in preparing Project documentation.

12. Reports

- a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.
- b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
- c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.

13. Payment Requests: Review Applications for Payment with Contractor. for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

14. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.
 15. 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 deficiencies corrected by Contractor.
 - d. Observe whether all items on the final punch list have been completed or corrected. and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.
- 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. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
 8. 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 mission 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:

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 (5%) 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 (20%) 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.
4. If there is no corresponding adjustment with respect to any other item of Work; and
5. If Contractor believes that Contractor has incurred additional expense as a result thereof or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, either Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Article 10 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

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.

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.

SC-15.04. Add the following new subparagraph to Paragraph 15.04 of the General Conditions. Paragraph 15.04.B modifies Paragraph 15.04.A of the General Conditions and reference is made thereto.

15.04.B. Nothing in Paragraph 15.04.A shall obligate the CONTRACTOR to apply for a Certificate of Substantial Completion for any part of this Project. The provisions for partial utilization of the Project, if any, are established by the Specifications and no Certificate of Substantial Completion will be issued for partial utilization occurring within the terms of the Specifications. Partial utilization of the Project not covered by the Specifications shall be in accordance with Paragraph 15.04.A and its sub-paragraphs. If a Certificate of Substantial Completion is not issued, Substantial Completion shall be when final payment is due in accordance with Paragraph 15.06.D.

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 (1) 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 final payment is approved by the Owner.

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.

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

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	Contactors 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.			

DIVISION A: LABOR & WAGE

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**CITY OF TWO HARBORS
STANDARD GOVERNMENTAL ENTITY
CONSTRUCTION CONTRACT PROVISIONS**

CITY OF TWO HARBORS

**STANDARD GOVERNMENTAL ENTITY
CONSTRUCTION CONTRACT PROVISIONS**

1. TWO HARBORS PREVAILING WAGES

Contractor shall comply with the provisions of Section 2.75 of the Two Harbors City Code.

2. MINNESOTA CONTRACTORS AND SUBCONTRACTORS

If a non-Minnesota Contractor or subcontractor enters into a Contract for this Project, and the total amount of the Contract for this Project is greater than \$50,000.00, the non-Minnesota Contractor or subcontractor will be required to file Form SD-E Minnesota Department of Revenue/Exemption from Surety Deposits for Non-Minnesota Contractors and provide any required surety deposit prior to executing the Contract for this Project.

Contractor shall comply with the provisions of Minnesota Statutes Section 471.425 Subd. 4a. Contractor shall pay any subcontractor within ten days of the Contractor's receipt of payment from Owner for undisputed services provided by the subcontractor. Contractor shall pay interest of 1½ percent per month or any part of a month to the subcontractor on any undisputed amount not paid on time to the subcontractor. Contractor shall pay the actual interest or \$10, whichever is greater, for an unpaid balance of \$100 or more. Contractor shall pay the subcontractor the actual interest for an unpaid balance of less than \$100.

3. WITHHOLDING AFFIDAVIT FOR CONTRACTORS

Attached herein is a copy of the Minnesota Department of Revenue Withholding Affidavit for Contractors, Form IC-134. The successful bidder entering into a Contract with the Owner will be required to file Form IC-134 with the State of Minnesota and provide the Owner with a copy of the completed form certified by the State of Minnesota before final payment can be issued by the Owner.

Copies of completed Form IC-134 will be required from the CONTRACTOR and all subcontractors supplying labor and materials for the Project.

4. CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE

The Contractor shall not commence work under this contract until the Contractor has obtained all the insurance required under this paragraph and such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work on any subcontract until the insurance required of the subcontractor has been obtained and approved.

- a) Compensation Insurance: The Contractor and each subcontractor shall procure and shall maintain during the term of the contract Worker's Compensation Insurance as required by applicable Minnesota law for all employees to be engaged in work at the site of the Project. In case any class of employees engaged in hazardous work on the Project is not protected under the Worker's

Compensation Statute, the Contractor shall provide and shall cause each subcontractor to provide adequate employer's liability insurance for the protection of such employees as are not otherwise protected. Contractor shall maintain "stop gap" coverage if Contractor obtains Workers' Compensation coverage from any state fund if Employer's liability coverage is not available.

- b) Contractor's Commercial General Liability and Property Damage Insurance and Vehicle Liability Insurance: The Contractor shall procure and shall maintain during the term of the Contract Contractor's Property Damage Insurance and Vehicle Liability Insurance and Contractor's Commercial General Liability Insurance in the amounts specified in Paragraphs (g), (h) and (i) below.
- c) Subcontractor's Commercial General Liability and Property Damage Insurance and Vehicle Liability Insurance: The Contractor shall either (1) require each subcontractor to procure and to maintain during the life of any subcontract, subcontractor's Commercial General Liability and Property Damage Insurance and Vehicle Liability Insurance of the type and in the amounts specified in Paragraphs (g), (h) and (i) below, or (2) insure the activities of the subcontractors in Contractor's policy, specified in Paragraph (b) above.
- d) Scope of Insurance and Special Hazards: The insurance required under Paragraphs (b) and (c) hereof shall provide adequate protection for the Contractor and the subcontractors, respectively against damage claims which may arise from operations under this contract, whether such operations be by the insured or by any one directly or indirectly employed by the insured and, also against any of the special hazards which may be encountered in the performance of this Contract as enumerated in Paragraph (g) below.
- e) Indemnification. The Contractor shall indemnify and save harmless the Owner from all claims and actions of any kind arising from, or incidental to the performance of the Contract and expenses incidental to such claims and actions, including attorneys' fees, and shall assume without expense to the Owner, the defense of any such claims or actions. Except to the extent prohibited by law, this indemnity applies regardless of any strict liability or negligence attributable to the Owner (including sole negligence) and regardless of the extent to which the underlying occurrence (i.e., the event giving rise to a claim which would have been covered by the specified insurance) is attributable to the negligent or otherwise wrongful act or omission (including breach of contract) of Owner, its agents, employees or delegates. Contractor agrees that this indemnity shall be construed and applied in favor of indemnification. Contractor also agrees that if applicable law limits or precludes any aspect of this indemnity, then the indemnity will be considered limited only to the extent necessary to comply with that applicable law. The stated indemnity continues until all applicable statutes of limitation have run.

If a claim arises within the scope of the stated indemnity, the Owner may require Contractor to:

- i. Furnish and pay for a surety bond, satisfactory to the Owner, guaranteeing performance of the indemnity obligation; or
- ii. Furnish a written acceptance of tender of defense and indemnity from Contractor's insurance company.

Contractor will take the action required by the Owner within fifteen (15) days of receiving notice from the Owner.

f) Proof of Insurance: The Contractor shall furnish the Owner with a certificate showing the type, amount, class of operations covered, effective dates and dates of expiration of policies. Such certificates shall contain substantially the following statement: “The insurance covered by this certificate will not be canceled, materially altered, or not renewed, except after thirty (30) days written notice or ten (10 days) for non-payment of premium, has been received by the Owner.” Owner is to be named as an additional insured on such Certificate and not merely as a Certificate holder. Contractor must provide Owner with appropriate endorsements to its policy(ies) of insurance reflecting the status of Owner as an additional insured and requiring that the foregoing notice of cancellation, material alteration or non-renewal be provided to owner by the insurance company providing such insurance policy(ies) to Contractor. In addition, all policies shall contain a waiver of subrogation in favor of Owner. All policies shall apply on a “per project” basis. Contractor agrees to maintain all coverage required herein throughout the term of the Contract and for a minimum of two (2) years following Owner's written acceptance of the Contract.

g) Limits of Insurance:

Worker’s Compensation:	As required by Minnesota law with an “all states” endorsement	
Employer’s Liability	Per Occurrence	\$2,000,000.00
Independent Contractor’s protective coverage liability:		
Bodily Injury:	Per Occurrence	\$2,000,000.00
Property Damage	Per Occurrence	\$2,000,000.00
Products and completed operations coverage to be kept in place for the duration of any contract guarantee period:		
Bodily Injury	Per Occurrence	\$2,000,000.00
Property Damage	Per Occurrence	\$2,000,000.00
Comprehensive General Liability, Premises and Operations:		
Bodily Injury	Per Occurrence	\$2,000,000.00
Comprehensive General Liability, Property Damage and Bodily Injury:	Per Occurrence	\$2,000,000.00
Products – Completed Operations	Per Occurrence	\$2,000,000.00
Fire Legal Liability	Each Occurrence	\$100,000.00

Medical Expense: \$5,000.00

Contractual Liability covering
customary Construction Contract
and subcontract indemnity provisions:

Bodily Injury Per Occurrence \$2,000,000.00

Contractual Liability covering
customary Construction Contract
and subcontract indemnity provisions:

Property Damage Per Occurrence \$2,000,000.00

Comprehensive Automobile
Liability \$2,000,000.00

Combined single limit each accident
(shall include coverage for all owned, hired and
non-owned vehicles).

Property Damage Per Occurrence \$2,000,000.00

"All Risk" Builder's Risk Insurance Completed Value Form

- (h) Property Insurance: Contractor shall provide "Special Perils" builder's risk insurance under a completed value form on all work on the Project, including foundations, permanent fixtures and attachments, machinery and equipment included in or installed under the Contract, debris removal, architects' and engineer's fees, temporary structures, materials, equipment and supplies of all kinds located on the Project, to the full replacement value thereof, except that such policy may provide for a deductible amount not to exceed \$25,000.00 per occurrence. Said insurance shall be endorsed to provide consent for occupancy of the Project and shall be maintained in effect until permanent property coverage is in force. Such insurance shall be written in the names of Contractor, any subcontractor and Owner, as their interests may appear. Contractor, all subcontractors, and suppliers waive all rights against Owner for damages caused by fire or insured perils, except such rights as are set forth hereunder to the proceeds of such insurance payable in the event of such loss.
- (i) Commercial General Liability Insurance: Commercial General Liability Insurance written on an "occurrence" basis under Commercial General Liability Form with "Broad Form" property damage liability coverage, with the XCU exclusion removed, in limits specified in paragraph (g) above. Contractor shall require such liability coverage from all subcontractors unless they are insured under the Contractor's policies. Certificates evidencing such coverage obtained by any subcontractor shall be provided to Owner and Engineer/Architect.
- (j) General Liability: Prior to starting the Work, Contractor shall procure, maintain and pay for such insurance as will protect against claims or loss which may arise out of operations by Contractor or by any subcontractor or by anyone employed by any of them or by anyone for whose acts any of them may be liable. Such insurance shall include, but not be limited to, minimum coverages and limits of liability specified in this section, or required by law.

- (k) Commercial General Liability: The Commercial General Liability Policy shall be on ISO form CG 00 01 12 07 or CG 00 01 04 13, or the equivalent. Such insurance shall cover liability arising from premises, operations, independent contractors, products, completed operations, personal and advertising injury, and liability assumed under an insured contract (including the tort liability of another assumed in a business contract). There shall be no endorsement or modification of the Commercial General Liability form arising from pollution, explosion, collapse, underground property damage or work performed by subcontractors.
- (l) Claim Form: Contractor shall obtain and provide to Owner, with the Certificate of Insurance, a Claim Form for use by parties with claims against Contractor arising out of the performance of work by Contractor under the Contract with Owner.
- (m) Primary Policies: All policies shall be primary and non-contributory.
- (n) Deductible Responsibilities: It shall be Contractor's responsibility to pay any retention or deductible for the coverages required herein.
- (o) Insurance Company Rating: Contractor shall maintain in effect all insurance coverages required under this section at Contractor's sole expense and with insurance companies licensed to do business in the state in Minnesota and having a current A.M. Best rating of no less than A-, unless specifically accepted by Owner in writing.

5. REFERENCE PROVISION – NON-DISCRIMINATION

Minn. Stat. § 181.59. The Local Government will comply with the provisions of Minn. Stat. § 181.59 which requires: Every contract for or on behalf of the state of Minnesota, or any county, city, town, township, school, school district, or any other district in the state, for materials, supplies, or construction shall contain provisions by which the Contractor agrees:

- (1) That, in the hiring of common or skilled labor for the performance of any work under any contract, or any subcontract, no contractor, material supplier, or vendor, shall, by reason of race, creed, or color, discriminate against the person or persons who are citizens of the United States or resident aliens who are qualified and available to perform the work to which the employment relates;
- (2) That no contractor, material supplier, or vendor, shall, in any manner, discriminate against, or intimidate, or prevent the employment of any person or persons identified in clause (1) of this section, or on being hired, prevent, or conspire to prevent, the person or persons from the performance of work under any contract on account of race, creed, or color;
- (3) That a violation of this section is a misdemeanor; and
- (4) That this contract may be canceled or terminated by the state, county, city, town, school board, or any other person authorized to grant the contracts for employment, and all money due, or to become due under the contract, may be forfeited for a second or any subsequent violation of the terms or conditions of this contract.

6. GOVERNMENT DATA PRACTICES

Contractor acknowledges that City is subject to the provisions of the Minnesota Government Data Practices Act.

Contractor must comply with the Minnesota Government Data Practices Act, Minnesota Statutes, Chapter 13, as it applies to all data provided by City in accordance with this Agreement and as it applies to all data created, collected, received, stored, used, maintained, or disseminated by Contractor in accordance with this Agreement. The civil remedies of Minnesota Statutes § 13.08, apply to Contractor and City.

Minnesota Statutes, Chapter 13, provides that all government data are public unless otherwise classified. If Contractor receives a request to release the data referred to in this Section, Contractor must immediately notify City and consult with City as to how Contractor should respond to the request. Contractor's response shall comply with applicable law, including that the response is timely and, if Contractor denies access to the data, that Contractor's response references the statutory basis upon which Contractor relied. Contractor does not have a duty to provide public data to the public if the public data is available from City.

7. INTELLECTUAL PROPERTY

- a) The Owner will own all rights, title, and interest in all of the intellectual property rights, including copyrights, patents, trade secrets, trademarks, and service marks in the Works and Documents created and paid for under work order contracts. Works means all inventions, improvements, discoveries (whether or not patentable), databases, computer programs, reports, notes, studies, photographs, negatives, designs, drawings, specifications, materials, tapes, and disks conceived, reduced to practice, created or originated by the Contractor, its employees, agents, and subcontractors, either individually or jointly with others in the performance of this master contract or any work order contract Works includes "Documents." Documents are the originals of any databases, computer programs, reports, notes, studies, photographs, negatives, designs, drawings, specifications, materials, tapes, disks, or other materials, whether in tangible or electronic forms, prepared by the Contractor, its employees, agents, or contractors, in the performance of a work order contract The Documents will be the exclusive property of the Owner and all such Documents must be immediately returned to the Owner by the Contractor upon completion or cancellation of the work order contract. To the extent possible, those Works eligible for copyright protection under the United States Copyright Act will be deemed to be "works made for hire." The Contractor Government assigns all right, title, and interest it may have in the Works and the Documents to the Owner. The Contractor must, at the request of the Owner, execute all papers and perform all other acts necessary to transfer or record the Owner's ownership interest in the Works and Documents. Notwithstanding the foregoing, the Owner grants the Contractor an irrevocable and royalty-free license to use such intellectual property for its own non-commercial purposes, including dissemination to political subdivisions of the state of Minnesota and to transportation-related agencies such as the American Association of State Highway and Transportation Officials.

b) Obligations with Respect to Intellectual Property.

- a. Notification. Whenever any invention, improvement, or discovery (whether or not patentable) is made or conceived for the first time or actually or constructively reduced to practice by the Contractor, including its employees and subcontractors, in the performance of the work order contract, the Contractor will immediately give the Owner's Authorized Representative written notice thereof, and must promptly furnish the Authorized Representative with complete information and/or disclosure thereon.
- b. Representation. The Contractor must perform all acts, and take all steps necessary to ensure that all intellectual property rights in the Works and Documents are the sole property of the Owner, and that neither Contractor nor its employees, agents or contractors retain any interest in and to the Works and Documents.

8. PROJECT LABOR AGREEMENT

- 8.1 The successful bidder shall enter into and comply with the requirements of a Project Labor Agreement between the Owner and the Duluth Building and Construction Trades Council ("Council").
- 8.2 A copy of the Project Labor Agreement is included in Section 00805 of this Project Manual.
- 8.3 Copies of the existing labor agreements for the Unions who are members of the Council are available upon request from the Engineer.
- 8.4 In case of any discrepancy between any prevailing wage rate that is applicable to the Project by law, rule or regulation (Federal, State or City) and the Project Labor Agreement, the wage rates providing the higher wages and benefits in the aggregate to workers will govern with respect to the determination of the applicable prevailing wage rules.
- 8.5 The Project Labor Agreement requires that all contractors participate in a meeting with the local union with jurisdiction over the work being performed by such contractor before such contractor commences work on the Project.

9. AFFIDAVIT OF NON-COLLUSION

Each bidder shall submit an affidavit of non-collusion form included in this Project Manual.

**TWO HARBORS CITY CODE
SECTION 2.75**

SEC. 2.75 WAGE RATES AND HOURS FOR CITY PROJECTS.

Subd. 1. Definitions. The following terms, as used in this Section, shall have the meanings stated:

1. **“Basic Hourly Rate”** – The hourly rate paid to any employee.
2. **“Prevailing Wage Rate”** – The basic hourly rate plus fringe benefits prevailing in the County of Lake, as determined by the Minnesota Department of Labor and Industry; provided that whenever employer and employee organizations employing and representing a majority of a class of workers in a particular industry within the City jointly certify that the prevailing basic hourly rate plus fringe benefits of such workers differs from the amount determined by the Secretary of Labor, the certified rate shall be considered to be the prevailing wage rate for such class of workers in that industry.
3. **“Fringe Benefits”** – Employer contribution for health and welfare benefits, vacation benefits, pension benefits, and all other economic benefits other than the basic hourly rate.
4. **“Apprentice Trainee”** – An employee who is working under a training program which is approved either by the U.S. Department of Labor Bureau of Apprenticeship and Training or the Minnesota Director of Voluntary Apprenticeship.
5. **“Project”** – Erection, construction, demolition, remodeling or repairing of any public building, highway, sidewalk, bridge, water or gas line, sewer and sewage treatment facility or other public work performed under contract with the City.
6. **“Laborer, Mechanic”** – All persons utilized, employed or working on a project who are doing work usually done by mechanics and laborers, including proprietors, partners, and members of cooperatives.

Subd. 2. Wage Rates and Hours for City Projects.

A. Any contract which provides for a project of estimated total cost of over \$25,000.00 shall contain a stipulation that no laborer, mechanic or apprentice-trainee employed directly upon the project work site by the contractor or any subcontractor shall be permitted or required to work at a rate of pay less than the prevailing wage rate; nor shall any such employee be permitted or required to work more than 8 hours in a work day or 40 hours in any work week unless he is paid at a rate of at least 1-1/2 times the basic hourly rate for all hours in excess of 8 per day or 40 per week and unless he received fringe benefits that are at least equal to those in the prevailing wage rate; provided that whenever employer and employee organizations employing and representing a majority of a class of workers in a particular industry within the City jointly certify that the maximum number of hours that such persons may work under existing labor agreements before overtime wages must be paid differs from the hours specified in this Subdivision, the maximum number of hours specified in such labor agreements shall be substituted for those specified above in applying the provisions of this Subdivision to such workers.

B. All contracts for City projects shall have applicable schedules of prevailing wage rates set forth in the contract. Schedules of applicable prevailing wage rates shall be present on all project job sites and shall either be posted on the site or be on the person of any supervisor in charge of the job site.

C. Employees on the projects shall be paid at least weekly. Fringe benefits shall be paid either in cash or to an employee benefit plan that has been approved by the U.S. Department of Labor.

D. Any contractor or subcontractor working on a project shall furnish the City with a copy of all payrolls relating to the project. Such payroll reports shall be submitted weekly on U.S. Department of Labor standard forms or their equivalent to the employee of the City in charge of supervising contract performance.

E. No contractor or subcontractor working on a project shall evade or attempt to evade the provisions of this Section through the use of non-recognized training programs. The only employees involved in training programs that shall be allowed to work on projects covered by this Section shall be apprentice-trainees as defined by this Section.

F. Any person violating the provisions of this Section shall be guilty of a misdemeanor with each day of violation constituting a separate offense. In addition, if the prevailing wage rate is not paid to employees working on a project, the City may withhold contract payments to the contractor until such deficiencies are corrected.

G. This Section shall not apply to contracts for projects where the total estimated cost of the project is less than \$15,000.00; nor to material men who do not more than deliver materials to the work site, except that this Section shall apply to employees who deliver asphalt, concrete or mineral aggregate such as sand, gravel or stone where such material is incorporated into the project by depositing the material substantially in place, either directly or through spreaders, from the transporting vehicle.

Subd. 3. Kickbacks from Public Works Employees Prohibited. It is unlawful for any contractor working on a project or other person to, by force, intimidation, or threat of termination of employment, cause any employee working on a project to give up any part of the compensation to which he/she is entitled under his/her contract of employment.

EXHIBIT A

IC134

Minnesota Revenue Withholding Affidavit for Contractors

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Contractor Affidavit

This Contractor Affidavit must be certified by the Minnesota Department of Revenue before the state of Minnesota or any of its subdivisions can make final payment to contractors. For more detailed information, see the instructions on the back of this form.

Please type or print clearly. This information will be used for returning the completed form.

Company name			Daytime phone	Minnesota tax ID number
Address			Total contract amount	Month/year work began
City	State	ZIP code	\$	Month/year work ended
			Amount still due	
			\$	

Project number	Project location			
Project owner	Address	City	State	ZIP code

Did you have employees work on this project? Yes No. If no, who did the work?

Check the box that describes your involvement in the project and fill in all information requested.

Sole contractor

Subcontractor

Name of contractor who hired you

Address

Prime contractor—If you subcontracted out any work on this project, all of your subcontractors must submit their own Contractor Affidavits and have them certified by the Department of Revenue *before* you can submit your Contractor Affidavit. For each subcontractor you had, fill in the information below and attach a copy of each subcontractor’s certified Contractor Affidavit. If you need more space, attach a separate sheet.

Business name	Address	Owner/Officer

I declare that all information I have filled in on this form is true and complete to the best of my knowledge and belief. I authorize the Department of Revenue to disclose pertinent information relating to this project, including sending copies of this form, to the prime contractor if I am a subcontractor, and to any subcontractors if I am a prime contractor, and to the contracting agency.

Contractor’s signature	Title	Date
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Mail to: Minnesota Revenue, Mail Station 6610, St. Paul, MN 55146-6610
Phone: 651-282-9999 or 1-800-657-3594

Certificate of Compliance

Based on records of the Minnesota Department of Revenue, I certify that the contractor who has signed this Contractor Affidavit has fulfilled all the requirements of Minnesota Statutes 290.92 and 270C.66 concerning the withholding of Minnesota income tax from wages paid to employees relating to contract services with the state of Minnesota and/or its subdivisions.

Department of Revenue approval

Date

Form IC134 Instructions

Contractor Affidavit

No state agency or local unit of government can make final payment to a contractor until the Department of Revenue has certified that the contractor and any subcontractor have fulfilled the requirements of Minnesota withholding tax laws.

If you are a prime contractor, a contractor or a subcontractor who did work on a project for the state of Minnesota or any of its local government subdivisions — such as a county, city or school district — you must submit a Contractor Affidavit to the Department of Revenue to receive a certificate of compliance.

Use of Information

The Department of Revenue needs **all** the requested information to determine if you have met the state income tax withholding requirements. If all required information is not provided, Form IC134 will be returned to you for completion.

All information on this Contractor Affidavit is private by state law. It cannot be given to others without your permission, except to the Internal Revenue Service, other states that guarantee the same privacy and certain government agencies as provided by law.

Minnesota Tax ID Number

You must have a Minnesota tax ID number if you have employees who work in Minnesota. You must enter your Minnesota tax ID number on Form IC134.

If you don't have a Minnesota tax ID number, apply online at www.revenue.state.mn.us or by calling our Business Registration Office at 651-282-5225 or 1-800-657-3605.

If you have no employees and did all the work yourself, you do not need a Minnesota tax ID number. Instead, enter your Social Security number in the space for Minnesota tax ID number and explain who did the work.

Submit Contractor Affidavit

Form IC134 cannot be processed by the Department of Revenue until you finish the work. If you submit the form before the project is completed, it will be returned to you unprocessed.

If any withholding payments are due to the state, Minnesota law requires certified payments before we approve your Form IC134.

If you are a subcontractor or sole contractor, submit the form when you have completed your part of the project.

If you are a prime contractor, submit the form when the entire project is completed and you have received certified Contractor Affidavits from all of your subcontractors.

If you're a prime contractor and a subcontractor on the same project

If you were hired as a subcontractor to do work on a project, and you subcontracted all or a part of your portion of the project to another contractor, you are a prime contractor as well. Complete both the subcontractor and prime contractor areas on a single Form IC134.

You may submit your Contractor Affidavit either electronically **or** by mail. This affidavit must be certified and returned before the state or any of its subdivisions can make final payment for your work.

For an immediate response: Complete and submit your Contractor Affidavit electronically. Go to www.revenue.state.mn.us and choose **Withholding Tax**. Under the File and Pay tab, click on Contractor Affidavit Information for Government Projects.

You may complete and mail Form IC134 to: Minnesota Revenue, Mail Station 6610, St. Paul, MN, 55146-6610. If you have fulfilled the requirements of Minnesota withholding tax laws, the department will sign your Form IC134 and return it to you. To receive your final payment, submit the certified Contractor Affidavit to the government unit for which the work was done. If you are a subcontractor, submit the certified Contractor Affidavit to your prime contractor to receive your final payment.

Information and Assistance

Additional forms and information, including fact sheets and frequently asked questions, are available on our website.

Website: www.revenue.state.mn.us

Email: withholding.tax@state.mn.us

Phone: 651-282-9999 or 1-800-657-3594

This information is available in alternate formats.

SECTION 00805
PROJECT LABOR AGREEMENT

ARTICLE I
PURPOSE

This Agreement is entered into on the ____ day of _____, 20__ by and by and between _____, its successors or assigns (hereinafter "Project Contractor"), Lake County, Minnesota (hereinafter "Owner") and the DULUTH BUILDING AND CONSTRUCTION TRADES COUNCIL, on behalf of its affiliated local unions, acting on their own behalf and on behalf of their respective affiliates and members whose names are subscribed hereto and who have, through their duly authorized officers, executed this Agreement, hereinafter collectively called the "Union or Unions," with respect to the construction of the 2021 Street and Utility Improvement Project, hereinafter "Project."

The term "Contractor" shall include all construction contractors and subcontractors of whatever tier engaged in construction work within the scope of this Agreement, including the Project Contractor when it performs construction work within the scope of this Agreement. Where specific reference to _____ alone is intended, the term "Project Contractor" is used.

The parties recognize the need for the timely completion of the Project without interruption or delay. This Agreement is intended to establish a framework for labor-management cooperation and stability. The Contractor(s) and the Unions agree that the timely construction of this Project will require substantial numbers of employees from construction and supporting crafts possessing skills and qualifications that are vital to its completion. They will work together to furnish skilled, efficient workers for the construction of the Project.

The parties desire to mutually establish and stabilize wages, hours, and working conditions for the workers on the Project, to encourage close cooperation between the Contractor(s) and the Unions to the end that a satisfactory, continuous, and harmonious relationship will exist between the parties to this Agreement. The parties further desire to work together to provide opportunities for workers living in the 55616 zip code area to work on the Project.

Therefore, in recognition of the special needs of the Project, the parties have entered into this Agreement to maintain a spirit of harmony, labor-management peace, and stability during the term of this Agreement, and to endeavor to provide opportunities for workers living in the 55616 zip code area to work on the Project. Towards this end, at each pre-job conference held pursuant to Section 4 of Article VIII hereof the availability of qualified workers living in the 55616 zip code area and the desire of the Owner to employ such workers will be discussed. The parties agree to abide by the terms and conditions in this Agreement, and to establish effective and binding methods for the settlement of all misunderstandings, disputes or grievances which may arise. Further, the Contractor(s) agree not to engage in any lockout, and the Unions agree not to engage in any strike, slow down, or interruption or other disruption of or interference with the work covered by this Agreement.

ARTICLE II
SCOPE OF AGREEMENT

Section 1. This Project Labor Agreement shall apply and is limited to all construction work included in all bid categories for the Project under the direction of and performed by the Contractor(s) who have contracts awarded for such work on the Project. Such work shall include site preparation work. No pre-fabrication, fabrication, manufacturing or any other work performed at locations other than at the Project site is within the scope of this Agreement.

The Project is defined as:

Improvements to the following blocks within the City of Two Harbors:

- Lake County State Aid Highways:
 - 4th Avenue from 7th Street to 8th Street (S.A.P. 038-635-001)
 - 8th Street from 4th Avenue to 7th Avenue (S.A.P. 038-630-001)
 - 7th Street at its intersection with 5th Avenue (S.A.P. 038-620-010)
- City of Two Harbors Streets:
 - 4th Avenue from 8th Street to its west end
 - 5th Avenue from 7th Street to its west end
 - 6th Avenue from 7th Street to its west end

Improvements to be performed under the Project generally include:

1. Replacement of sanitary sewer and services on all Avenues.
2. Replacement of water main and services on all Avenues.
3. Replacement of existing storm sewer and/or installation of new storm sewer and/or drain tile on 8th Street and certain Avenues.
4. Reconstruction of pavement section on all blocks, with replacement of existing or installation of new concrete sidewalks and concrete curb and gutter as shown on the Project drawings.

Section 2. It is agreed that the Project Contractor shall require any Contractor who has been awarded a contract for work on the Project to accept and be bound by the terms and conditions of this Agreement by executing the Agreement to be Bound attached hereto as Exhibit A (“Agreement to be Bound”) prior to commencing work. This Agreement is a material term of the bid specifications for the Project and therefore, regardless of whether a Contractor executes this Agreement, by virtue of the Owner and/or Project Contractor accepting the bid offer of the Contractor, a Contractor who performs work on the Project is bound by this Agreement regardless of its execution of the Agreement to be Bound. The Project Contractor shall assure compliance with this Agreement by all Contractors. It is further agreed that, where there is a conflict, the terms and conditions of this Agreement shall supersede and override terms and conditions of any and all other national, area, or local collective bargaining agreements, except for all

work performed under contracts with a union that is not a member of the Duluth Building and Trades Council, with the exception of Article V, VI and VII of this Agreement, which shall apply to such work.

Section 3. Nothing contained herein shall be construed to prohibit, restrict or interfere with the performance of any other operation, work, or function which may occur at the Project site or be associated with the development of the Project.

Section 4. This Agreement shall only be binding on the signatory parties hereto and shall not apply to their parents, affiliates or subsidiaries.

Section 5. The Owner and/or Project Contractor have the absolute right to select any qualified bidder for the award of contracts on this Project without reference to the existence or non-existence of any agreements between such bidder and any party to this Agreement; provided, however, that such bidder is willing, ready and able to become a party to the Agreement to be Bound and comply with this Project Agreement, should it be designated a successful bidder.

Section 6. As areas and systems of the Project are inspected and construction tested by the Project Contractor or Contractor(s) and accepted by the Owner, the Project Labor Agreement will not have further force or effect on such items or areas, except when the Project Contractor or Contractor(s) are directed by the Owner to engage in repairs, modifications, check-out, and warranty functions required by its contract with the Owner during the term of this Agreement.

Section 7. It is understood that the Owner, at its sole option, may terminate, delay and/or suspend any or all portions of the Project at any time.

Section 8. It is understood that the liability of any employer and the liability of the separate Unions under this Agreement shall be several and not joint. The Unions agree that this Agreement does not have the effect of creating any joint employer status between or among the Owner, Contractor(s) or any employer.

Section 9. The provisions of this Project Labor Agreement shall apply to all craft employees represented by any Union listed in Exhibit B hereto attached (“Unions”) and shall not apply to other field personnel or managerial or supervisor employees as defined by the National Labor Relations Act. No Contractor is required to sign any other agreement as a condition of performing work on the Project. However, any Contractor performing work on the Project which is not party to a labor agreement with one of the Unions (“PLA Contractor”), agrees to install hourly wage rates, hours, fringe benefit contributions, referral procedures and all other terms of conditions of employment (i) as are provided in the labor agreements between the Unions and employers in effect on the date hereof (“Local Labor Agreements”), subject to Article XIII hereof, or (ii) as are provided in any applicable Davis-Bacon/prevaling wage rate statute, rule or regulation (city, state or federal), whichever provides the higher wage and benefits in the aggregate to workers on the Project, for each employee employed by such PLA Contractor for work on the Project. The required wage and benefit rates shall hereinafter be referred to as the “Project Labor Rates.” All employees covered by this Agreement shall be classified in accordance with the work performed.

Section 10. The Contractor(s) agree to pay contributions to the established employee benefit funds in the amounts set forth in the Project Labor Rates for the applicable craft employees.

Contractors that are not signatory to a collective bargaining agreement (“PLA Contractor”) may select to participate in the legally established Industry Health Reimbursement Arrangement (“HRA”) plan, in lieu of contributing to the respective bona fide benefit funds set forth in the Project Labor Rates. The amount of the contribution is based on the difference between the contribution amount of the bona fide PLA Contractors benefit funds set forth in the Project Labor Rates and the cost of the PLA Contractors’ bona fide non-discretionary plans. Contributions must be made on behalf of named employees. Participating contractors will submit to the trustees of the HRA trust and plan a copy of their plan, summary plan description, and the premium structure for workers covered under the PLA Contractor(s’) bona fide, non-discretionary plans. The value of the PLA Contractors’ benefit plans are subject to confirmation by the trustees of the HRA trust and plan. This may include an independent audit, at the expense to the trustees, according to a policy established by the trustees. Contractor(s) are required to submit certified payroll reports to the trustees or authorized administrator in order to confirm compliance with the terms of the HRA trust and plan.

Contractor(s) adopt and agree to be bound by the written terms of the legally-established trust agreements (or in lieu thereof, the aforementioned HRA plan and trust including any policies) specifying the detailed basis on which payments are to be made into, and benefits paid out of, such trust funds. The Contractor(s) authorize the parties to such trust agreements to appoint trustees and successor trustees to administer the trust funds and hereby ratify and accept the trustees so appointed as if made by the Contractor(s).

ARTICLE III

UNION RECOGNITION AND UNION SECURITY

Section 1. The Contractor(s) recognize the Unions as the sole and exclusive bargaining representatives of all craft employees who are members of the business within their respective jurisdictions working on the Project within the scope of this Agreement.

Section 2. All craft employees who are members of the Unions covered by this Agreement now in the employ of any Contractor shall remain members in good standing in their respective Unions during the term of the Agreement.

Section 3. Authorized representatives of the Unions shall have access to the Project, provided they do not interfere with the work of employees and further provided that such representatives comply fully with the posted visitor and security and safety rules of the Project.

ARTICLE IV

REFERRAL OF EMPLOYEES

Workers for the various craft classifications covered by this Agreement required by any Contractor to perform work on the Project shall be referred to the Contractor in accordance with the hiring provisions in the Local Labor Agreement applicable to such craft. The Unions represent that they will administer and control their referrals and it is agreed that these referrals will be made in a non-discriminatory manner and in full compliance with Federal and State laws. Subject to the foregoing, the Unions and Contractors will use their best efforts to provide employment to members of the Unions living within the 55616 zip code area.

ARTICLE V
MANAGEMENT'S RIGHTS

This Agreement shall be limited to work historically recognized as construction work. Nothing contained herein shall be construed to prohibit, restrict, or interfere with the performance of any other operation, work or function which may occur in or around the Project site or be associated with the development of the Project, or with the ongoing operations of the Owner. The Project Contractor retains full and exclusive authority for the management of the Project and all Contractors shall retain all existing rights of management and all rights conferred by law. Management rights including, but limited to, the hiring, promoting, laying off, suspending, disciplining, or discharging for cause, direction of work force, work schedules, and work practices are vested solely in management except as specifically and expressly limited by this Agreement and the Local Area Agreements.

ARTICLE VI
WORK STOPPAGES AND LOCKOUTS

Section 1. During the term of this Agreement there shall be no strikes, picketing, work stoppages, slow downs or other disruptive activity for any reason by the Unions or by any employee, and there shall be no lockout by the Contractor(s). Failure of any Union or employee to cross any picket line established at the Project site is a violation of this Article.

Section 2. The Unions shall not sanction, aid, abet or encourage any work stoppage, work slow down, strike, picketing or other disruptive activity at the Project site and shall undertake all reasonable means to prevent or to terminate any such activity. No employee shall engage in activities which violate this Article. Any employee who participates in or encourages any activities which interfere with the normal operation of the Project shall be subject to disciplinary action, including discharge, and if justifiably discharged for the above reasons, shall not be eligible for rehire on the Project for a period of not less than thirty (30) days.

Section 3. The Unions shall not be liable for acts of employees for whom it has no responsibility. The International Union General President or Presidents will immediately instruct, order and use the best efforts of his/her office to cause the Local Union or Unions to cease any violations of this Article. An International Union complying with this obligation shall not be liable for unauthorized acts of its Local Union. The principal officer or officers of a Local Union will immediately instruct, order and use the best efforts of his/her office to cause the employees the Local Union represents to cease any violations of this Article. A Local Union complying with this obligation shall not be liable for unauthorized acts of employees it represents. The failure of the Contractor(s) to exercise its right in any instance shall not be deemed a waiver of its right in any other instance.

Section 4. Any party alleging a breach of this Article shall have the right to petition a court for temporary and permanent injunctive relief. The moving party need not show the existence of irreparable harm, and shall be required to post bond only to secure payment of court costs and attorney fees as may be awarded by the Court.

ARTICLE VII
DISPUTES AND GRIEVANCES

Section 1. This Agreement is intended to provide close cooperation between management and labor. Each of the Unions will assign a representative to this Project for the purpose of completing the construction of the Project economically, efficiently, continuously, and without interruptions, delays, or work stoppages.

Section 2. The Contractor(s), Unions, and the employees, collectively and individually realize the importance to all parties to maintain continuous and uninterrupted performance of the work on the Project, and agree to resolve disputes in accordance with the grievance-arbitration provisions set forth in this Article.

Section 3. Any question or dispute arising out of and during the term of this Project Labor Agreement (other than trade jurisdictional disputes) shall be considered a grievance and subject to resolution under the following procedures:

Step 1. (a) When an employee subject to the provisions of this Agreement feels he or she is aggrieved by a violation of this Agreement, he or she, through his or her local union business representative or job steward, shall, within ten (10) working days after the occurrence of the violation, or knowledge of the violation, give notice to the work-site representative of the involved Contractor stating the provision(s) of the existing Local Area Agreement and/or this Project Labor Agreement alleged to have been violated. The business representative of the local union or the job steward and the work-site representative of the involved Contractor and the Project Contractor shall meet and endeavor to adjust the matter within three (3) working days after timely notice has been given. The representative of the Contractor shall keep the meeting minutes and shall respond to the Union representative in writing (copying the Project Contractor) at the conclusion of the meeting but not later than twenty-four (24) hours thereafter. If they fail to resolve the matter within the prescribed period, the grieving party may, within forty-eight (48) hours thereafter, pursue Step 2 of the Grievance Procedure, provided the grievance is reduced to writing, setting forth the relevant information concerning the alleged grievance, including a short description thereof, the date on which the grievance occurred, and the provision(s) of the existing Local Area Agreement and/or this Project Labor Agreement alleged to have been violated.

(b) Should the Local Union(s) or the Project Contractor or any Contractor have a dispute with the other party and, if after conferring, a settlement is not reached within seven (7) working days, the dispute may be reduced to writing and proceed to Step 2 in the same manner as outlined herein for the adjustment of an employee complaint.

Step 2. The Business Manager or his or her designee of a Local Union and the involved Contractor shall meet within seven (7) working days of the referral of a dispute to this second step to arrive at a satisfactory settlement thereof. Meeting minutes shall be kept by the Contractor. If the parties fail to reach an agreement, the dispute may be appealed in writing in accordance with the provisions of Step 3 within seven (7) calendar days thereafter.

Step 3. (a) If the grievance has been submitted but not adjusted under Step 2, either party may request in writing, within seven (7) calendar days thereafter, that the grievance be submitted to an Arbitrator mutually agreed upon by them. The Contractor and the involved Union shall attempt mutually to select an arbitrator, but if they are unable to do so, they shall request the Federal Mediation and Conciliation Service to provide them with a list of seven (7) neutral arbitrators from which the Arbitrator shall be selected. The parties shall alternatively strike arbitrators from the list until one remains, who shall preside at the hearing. The party striking first shall be determined by the flip of a coin. The decision of the Arbitrator shall be final and binding on all parties. The fee and expenses of such Arbitration shall be borne equally by the Contractor and the involved Local Union(s).

(b) Failure of the grieving party to adhere to the time limits established herein shall render the grievance null and void. The time limits established herein may be extended only by written consent of the parties involved at the particular step where the extension is agreed upon. The Arbitrator shall have the authority to make decisions only on issues presented to him or her, and he or she shall not have authority to change, amend, add to or detract from any of the provisions of this Agreement.

Section 4. The Project Contractor and Owner shall be notified of all actions at Steps 2 and 3 and shall, upon their request, be permitted to participate in all proceedings at these steps. Owner shall have the right but not the obligation to participate in any proceedings conducted under this Article VII.

ARTICLE VIII **JURISDICTIONAL DISPUTES**

Section 1. The assignment of work will be solely the responsibility of the Contractor performing the work involved; and such work assignments will be in accordance with the Plan for the Settlement of Jurisdictional Disputes in the Construction Industry (the "Plan") or any successor Plan.

Section 2. All jurisdictional disputes on this Project, between or among the Unions and Contractors, shall be settled and adjusted according to the present Plan established by the Building and Construction Trades Department or any other plan or method of procedure that may be adopted in the future by the Building and Construction Trades Department. Decisions rendered shall be final, binding and conclusive on the Contractors and Unions.

Section 3. All jurisdictional disputes shall be resolved without the occurrence of any strike, work stoppage, or slow-down of any nature, and the Contractor's assignment shall be adhered to until the dispute is resolved. Individuals violating this section shall be subject to immediate discharge.

Section 4. Each Contractor will conduct a pre-job conference with the appropriate Union prior to commencing work. The Project Contractor and the Owner will be advised in advance of all such conferences and may participate if they wish. At each pre-job conference the availability of qualified workers living in the 55616 zip code area and the desire of the Owner to employ such workers will be discussed. Owner shall have the right but not the obligation to participate in any proceeding conducted under this Article VIII.

**ARTICLE IX
SUBCONTRACTING**

The Project Contractor agrees that neither it nor any of its contractors or subcontractors will subcontract any work to be done on the Project except to a person, firm or corporation who is or agrees to become party to this Agreement by executing the Agreement to be Bound. Any contractor or subcontractor working on the Project shall, as a condition to working on said Project, sign the Agreement to be Bound and perform all work under the terms of this Agreement.

**ARTICLE X
HELMETS TO HARDHATS**

Section 1. The Contractors and Unions recognize a desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in the building and construction industry. The Contractors and Unions agree to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment (hereinafter “Center”) and the Center’s “Helmets to Hardhats” program to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and other needs as identified by the parties.

Section 2. The Unions and Contractors agree to coordinate with the Center to create and maintain an integrated database of veterans interested in working on this Project and of apprenticeship and employment opportunities for this Project. To the extent permitted by law, the Unions will give credit to such veterans for bona fide, provable past experience.

**ARTICLE XI
LABOR HARMONY CLAUSE**

The Project Contractor shall furnish labor that can work in harmony with all other elements of labor employed on the Project and shall submit a labor harmony plan to demonstrate how this will be done. “Harmony” shall include the provision of labor that will not, either directly or indirectly, cause or give rise to any work disruptions, slow downs, picketing, stoppages, or any violence or harm to any person or property while performing any work, or activities incidental thereto at the Project. The labor harmony plan should include the Project Contractor’s labor management policies, collective bargaining agreements if any and their expiration dates, past labor relations history, a listing of activities anticipated under this Agreement that may potentially cause friction with on-site workers, and procedures the Project Contractor will undertake to eliminate this friction.

The Project Contractor agrees that it shall require every Contractor to provide labor that will work in harmony with all other elements of labor employed in the Project, and will include the provisions contained in the paragraph above, in every subcontract let for work under this Agreement.

The requirement to provide labor that can work in harmony with all other elements of labor employed in the Project through Project completion is a material element of this Agreement. Failure by the Project Contractor or any of Contractors to comply with this requirement shall be deemed a material breach of the Agreement which will subject the Project Contractor to all rights and remedies the Owner may have, including without limitation the right to terminate the Agreement.

ARTICLE XII
NO DISCRIMINATION

Section 1. The Contractor(s) and Union agree that they will not discriminate against any employee or applicant for employment because of his or her membership or non-membership in a Union or based upon race, color, religion, sex, national origin or age in any manner prohibited by law or regulation.

Section 2. Any complaints regarding application of the provisions of Section 1, should be brought to the immediate attention of the involved Contractor for consideration and resolution.

Section 3. The use of the masculine or feminine gender in this Agreement shall be construed as including both genders.

ARTICLE XIII
SAVINGS AND SEPARABILITY

It is not the intention of the parties to violate any laws governing the subject matter of this Agreement. The parties hereto agree that in the event any provisions of the Agreement are finally held or determined to be illegal or void as being in contravention of any applicable law, the remainder of the Agreement shall remain in full force and effect unless the part or parts so found to be void are wholly inseparable from the remaining portions of this Agreement. Further, the Contractor(s) and Union agree that if and when any and all provisions of this Agreement are finally held or determined to be illegal or void by a Court of competent jurisdiction, the parties will promptly enter into negotiations concerning the substance affected by such decision for the purpose of achieving conformity with the requirements of an applicable law and the intent of the parties hereto.

ARTICLE XIV
DURATION OF THE AGREEMENT

This Project Labor Agreement shall be effective _____, 20__ and shall continue in effect for the duration of work on the Project described in Section 1 of Article II hereof. Construction of any phase, portion, section or segment of the Project shall be deemed complete when such phase, portion, section or segment has been turned over to the Owner and has received the final acceptance from the Owner's representative.

Since there are provisions herein for no strikes or lockouts, in the event any changes are negotiated and implemented under an existing Local Area Agreement during the term of this Agreement, the Contractors agree that, except as specified herein, such changes shall be recognized and shall apply retroactively to the termination date in the particular existing Local Labor Agreement involved subject to the provisions of Section 9 of Article II hereof. Each Contractor which has an existing Local Labor Agreement with a Union at the time that its contract at the Project commences shall continue it in effect with each said Union so long as the Contractor remains on the Project. In the event any such existing Local Labor Agreement expires, the Contractor shall abide by all of the terms of the expired existing Local Labor Agreement until agreement is reached on a new Local Labor Agreement, with any changes being subject to the provisions of this Agreement.

The Union(s) agree(s) that there will be no strikes, work stoppages, sympathy actions, picketing, slow downs or other disruptive activity affecting the Project by any Union involved in the negotiation of a Local Labor Agreement nor shall there be any lockout on this Project affecting the Union during the course of such negotiations.

The parties hereto acknowledge and agree that Owner shall have the right, but not the obligation to enforce, any terms and provisions of this Agreement, and that Owner desires that any issues between the Contractor(s) and Union(s) be resolved without the involvement of the Owner.

IN WITNESS WHEREOF, the parties have entered into this Agreement to be effective as of the day and year above written.

OWNER

Attest

By _____
Its _____

By _____
Its _____

And by _____
Its _____

PROJECT CONTRACTOR

DULUTH BUILDING &
CONSTRUCTION TRADES
COUNCIL

By _____
Its _____

By _____
Its _____

EXHIBIT A

To the Project Labor Agreement between and among:

- A. Lake County, Minnesota (hereinafter "Owner")
- B. The Duluth Building and Construction Trades Council (hereinafter "Council"), on its own behalf and on behalf of each of its affiliated local unions listed on Exhibit B attached to the Project Labor Agreement ("Unions").
- C. _____ (hereinafter "Project Contractor"), and
- D. Each signatory subcontractor of any tier ("Contractor").

AGREEMENT TO BE BOUND

The undersigned, a Contractor performing construction work as a Subcontractor to Project Contractor, or a lower-tier subcontractor to one or more Subcontractors on the Project, for and in consideration of the award to it of a contract to perform work on said Project and in further consideration of the mutual promises made in the Project Labor Agreement for the Project (hereinafter "Agreement"), a copy of which was received and is acknowledged, hereby:

- 1. Accepts and agrees to be bound by the terms and conditions of the Agreement, together with any and all amendments and supplements now existing or which are later made to said Agreement.
- 2. Certifies that it has no commitments or agreements which would preclude its full and complete compliance with the terms and conditions of the Agreement.
- 3. Agrees to cause any of its subcontractors on the Project and all of their subcontractors at any tier to execute this Agreement to be Bound and to be bound to the Agreement.

Dated: _____, 20____
_____ (print name of company)

(Company Address)

(Phone No. Job Site and/or Office)

(Fax No.)

By: _____

Title: _____

Employer is a subcontractor to: _____
(Project Contractor or name of higher-tier Subcontractor)

EXHIBIT B

- A-1 Asbestos Workers Local 49
- A-2 Boilermakers Local 647
- A-3 BAC Local 1 Chapter 3 Duluth & Iron Range
- A-4 Carpenters Local 361
- A-5 Cements Masons/Plasterers Local 633
- A-6 Elevator Constructors Local 9
- A-7 IBEW Local 242
- A-8 Iron Workers Local 512
- A-9 Laborers Local 1091
- A-10 Millrights & Machinery Erectors Local 1348
- A-11 Operating Engineers Local 49
- A-12 Painters & Allied Trades Local 106
- A-13 Plumbers & Fitters Local 11
- A-14 Roofers Local 96
- A-15 Sheet Metal Workers Local 10
- A-16 Sprinkler Fitters Local 669
- A-17 Teamsters Local 346

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SECTION 00810 - WAGE RATES

PART 1 -- GENERAL

1.1 SUMMARY

- A. The project has received funding from the County State Aid Account.
- B. Pursuant to Minnesota Statutes 177.41 to 177.44 and corresponding Rules 5200.1000 to 5200.1120, this contract is subject to the prevailing wages as established by Minnesota Department of Labor and Industry. Specifically, all contractors and subcontractors must pay all laborers and mechanics the established prevailing wages for work performed under the contract. Failure to comply with the aforementioned may result in civil or criminal penalties.

1.2 PAYROLLS/RECORDS

- A. The contractor and subcontractor shall furnish to the OWNER's representative copies of any or all payrolls not more than 14 days after the end of each pay period. The payrolls must contain all of the data required by Minnesota Statute Section 177.30. Subcontractors must furnish payrolls to contractor. The ENGINEER may examine all records relating to wages paid laborers or mechanics on work to which Minnesota Statutes Section 177.41 to 177.44 apply.

1.3 POSTING OF WAGE RATES/REQUIRED POSTERS

- A. Each contractor and subcontractor performing work on a public project shall post on the project the applicable prevailing wage rates and hourly basic rates of pay for the county or area within which the project is being performed, including the effective date of any changes thereof, in at least one conspicuous place for the information of the employees working on the project. The information so posted shall include a breakdown of contributions for health and welfare benefits, vacation benefits, pension benefits, and any other economic benefits required to be paid.

1.4 SUBMITTALS

- A. Each statement submitted shall include all employees that performed work under this contract and provide at a minimum the following information:
 - 1. CONTRACTOR's name, address, and telephone number.
 - 2. Project number.
 - 3. Payroll report number.
 - 4. Project location.
 - 5. Workweek ending date.
 - 6. Name, last four digits of the social security number, and home address for each employee. Submittals shall not include the full social security number unless requested in writing by the OWNER or ENGINEER.
 - 7. Labor classification(s) and/or three-digit code for each employee.
 - 8. Hourly straight time and overtime wage rates paid to each employee.
 - 9. Daily and weekly hours worked in each labor classification, including overtime hours for each employee.
 - 10. Authorized legal deductions for each employee. The CONTRACTOR shall provide to the ENGINEER upon written request, a detailed itemization of all deductions.
 - 11. Project gross amount, weekly gross amount and net wages paid to each employee.

1.5 CONSTRUCTION

- A. Approval of payment requests for work for which no certified payroll has been received by the OWNER's representative may be delayed until the required documentation is received and reviewed. No interest shall accrue for payment delays that are a result of CONTRACTOR failure to comply with any portion of this section.
- B. At any time, the prime CONTRACTOR shall permit representatives from MN/DLI or the OWNER to interview its workers and those of any subcontractor on the project site during working hours.
- C. Review of certified payrolls by OWNER's representative shall not relieve prime CONTRACTOR of any liability for any unpaid wages. Nor shall such review impart any liability onto OWNER or OWNER's representative if it is later discovered that CONTRACTOR has violated any portion of this section.

1.6 FOR MORE INFORMATION

- A. For more information regarding prevailing wage and its application, contact:

Minnesota Department of Labor and Industry
Prevailing Wage Unit
443 Lafayette Road N.
St. Paul, MN 55155
Phone: 651-284-5091
Email: dli.prevwage@state.mn.us

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

****END OF SECTION****

MINNESOTA DEPARTMENT OF LABOR AND INDUSTRY PREVAILING WAGES FOR STATE FUNDED CONSTRUCTION PROJECTS



THIS NOTICE MUST BE POSTED ON THE JOBSITE IN A CONSPICUOUS PLACE

Construction Type: Highway and Heavy

Region Number: 01

Counties within region:

- CARLTON-09
- COOK-16
- ITASCA-31
- KOOCHICHING-36
- LAKE-38
- PINE-58
- ST. LOUIS-69

Effective: 2020-09-28

This project is covered by Minnesota prevailing wage statutes. Wage rates listed below are the minimum hourly rates to be paid on this project.

All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at a rate of one and one half (1 1/2) times the basic hourly rate. *Note: Overtime pay after eight (8) hours on the project must be paid even if the worker does not exceed forty (40) hours in the work week.*

Violations on MnDOT highways and road projects should be reported to:

Department of Transportation
Office of Construction
Transportation Building MS650
John Ireland Blvd
St. Paul, MN 55155
(651) 366-4209

All other prevailing wage violations and questions should be sent to:

Department of Labor and Industry
Prevailing Wage Section
443 Lafayette Road N
St Paul, MN 55155
(651) 284-5091
DLI.PrevWage@state.mn.us

LABOR CODE AND CLASS	EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
LABORERS (101 - 112) (SPECIAL CRAFTS 701 - 730)				
101 LABORER, COMMON (GENERAL LABOR WORK)	2020-09-28	32.83	21.27	54.10
	2021-05-01	34.13	22.02	56.15
102 LABORER, SKILLED (ASSISTING SKILLED CRAFT JOURNEYMAN)	2020-09-28	32.83	21.27	54.10
	2021-05-01	34.13	22.02	56.15

LABOR CODE AND CLASS	EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE	
103	LABORER, LANDSCAPING (GARDENER, SOD LAYER AND NURSERY OPERATOR)	2020-09-28	25.00	17.46	42.46
		2021-05-01	25.75	18.70	44.45
104	FLAG PERSON	2020-09-28	32.83	21.27	54.10
		2021-05-01	34.13	22.02	56.15
105	WATCH PERSON	2020-09-28	29.28	21.02	50.30
		2021-05-01	30.58	21.77	52.35
106	BLASTER	2020-09-28	32.62	22.43	55.05
107	PIPELAYER (WATER, SEWER AND GAS)	2020-09-28	35.83	21.27	57.10
		2021-05-01	37.63	22.02	59.65
108	TUNNEL MINER	2020-09-28	33.93	21.27	55.20
		2021-05-01	35.63	22.02	57.65
109	UNDERGROUND AND OPEN DITCH LABORER (EIGHT FEET BELOW STARTING GRADE LEVEL)	2020-09-28	33.93	21.27	55.20
		2021-05-01	35.63	22.02	57.65
110	SURVEY FIELD TECHNICIAN (OPERATE TOTAL STATION, GPS RECEIVER, LEVEL, ROD OR RANGE POLES, STEEL TAPE MEASUREMENT; MARK AND DRIVE STAKES; HAND OR POWER DIGGING FOR AND IDENTIFICATION OF MARKERS OR MONUMENTS; PERFORM AND CHECK CALCULATIONS; REVIEW AND UNDERSTAND CONSTRUCTION PLANS AND LAND SURVEY MATERIALS). THIS CLASSIFICATION DOES NOT APPLY TO THE WORK PERFORMED ON A PREVAILING WAGE PROJECT BY A LAND SURVEYOR WHO IS LICENSED PURSUANT TO MINNESOTA STATUTES, SECTIONS 326.02 TO 326.15.	2020-09-28	32.83	21.27	54.10
		2021-05-01	34.13	22.02	56.15
111	TRAFFIC CONTROL PERSON (TEMPORARY SIGNAGE)	2020-09-28	32.83	21.27	54.10
		2021-05-01	34.13	22.02	56.15

LABOR CODE AND CLASS	EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE	
112	QUALITY CONTROL TESTER (FIELD AND COVERED OFF-SITE FACILITIES; TESTING OF AGGREGATE, ASPHALT, AND CONCRETE MATERIALS); LIMITED TO MN DOT HIGHWAY AND HEAVY CONSTRUCTION PROJECTS WHERE THE MN DOT HAS RETAINED QUALITY ASSURANCE PROFESSIONALS TO REVIEW AND INTERPRET THE RESULTS OF QUALITY CONTROL TESTERS. SERVICES PROVIDED BY THE CONTRACTOR.	2020-09-28	25.00	12.65	37.65
		2021-05-03	40.04	22.55	62.59
SPECIAL EQUIPMENT (201 - 204)					
201	ARTICULATED HAULER	2020-09-28	38.89	21.55	60.44
		2021-05-03	40.04	22.55	62.59
202	BOOM TRUCK	2020-09-28	38.89	21.55	60.44
		2021-05-03	40.04	22.55	62.59
203	LANDSCAPING EQUIPMENT, INCLUDES HYDRO SEEDER OR MULCHER, SOD ROLLER, FARM TRACTOR WITH ATTACHMENT SPECIFICALLY SEEDING, SODDING, OR PLANT, AND TWO-FRAMED FORKLIFT (EXCLUDING FRONT, POSIT-TRACK, AND SKID STEER LOADERS), NO EARTHWORK OR GRADING FOR ELEVATIONS	2020-09-28	24.00	16.96	40.96
		2021-05-03	40.04	22.55	62.59
204	OFF-ROAD TRUCK	2020-09-28	38.89	21.55	60.44
		2021-05-03	40.04	22.55	62.59
205	PAVEMENT MARKING OR MARKING REMOVAL EQUIPMENT (ONE OR TWO PERSON OPERATORS); SELF-PROPELLED TRUCK OR TRAILER MOUNTED UNITS.	2020-09-28	28.36	20.89	49.25
		2021-05-03	40.04	22.55	62.59
HIGHWAY/HEAVY POWER EQUIPMENT OPERATOR					
GROUP 2		2020-09-28	39.74	21.55	61.29
		2021-05-03	40.89	22.55	63.44

LABOR CODE AND CLASS	EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
302				
303				
304				
305				
306				
307				
308				
GROUP 3	2020-09-28	39.19	21.55	60.74
	2021-05-03	40.34	22.55	62.89
309				
310				
311				
312				
313				
314				
315				
316				
317				
318				
319				
320				
321				
322				
GROUP 4	2020-09-28	38.89	21.55	60.44
	2021-05-03	40.04	22.55	62.59
323				
324				
325				
326				
327				
328				
329				
330				

LABOR CODE AND CLASS	EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
331				CHIP HARVESTER AND TREE CUTTER
332				CONCRETE DISTRIBUTOR AND SPREADER FINISHING MACHINE, LONGITUDINAL FLOAT, JOINT MACHINE, AND SPRAY MACHINE
333				CONCRETE MIXER ON JOBSITE (HIGHWAY AND HEAVY ONLY)
334				CONCRETE MOBIL (HIGHWAY AND HEAVY ONLY)
335				CRUSHING PLANT (GRAVEL AND STONE) OR GRAVEL WASHING, CRUSHING AND SCREENING PLANT
336				CURB MACHINE
337				DIRECTIONAL BORING MACHINE
338				DOPE MACHINE (PIPELINE)
339				DRILL RIGS, HEAVY ROTARY OR CHURN OR CABLE DRILL (HIGHWAY AND HEAVY ONLY)
340				DUAL TRACTOR
341				ELEVATING GRADER
342				FORK LIFT OR STRADDLE CARRIER (HIGHWAY AND HEAVY ONLY)
343				FORK LIFT OR LUMBER STACKER (HIGHWAY AND HEAVY ONLY)
344				FRONT END, SKID STEER OVER 1 TO 5 C YD
345				GPS REMOTE OPERATING OF EQUIPMENT
346				HOIST ENGINEER (POWER) (HIGHWAY AND HEAVY ONLY)
347				HYDRAULIC TREE PLANTER
348				LAUNCHER PERSON (TANKER PERSON OR PILOT LICENSE)
349				LOCOMOTIVE (HIGHWAY AND HEAVY ONLY)
350				MILLING, GRINDING, PLANING, FINE GRADE, OR TRIMMER MACHINE
351				MULTIPLE MACHINES, SUCH AS AIR COMPRESSORS, WELDING MACHINES, GENERATORS, PUMPS (HIGHWAY AND HEAVY ONLY)
352				PAVEMENT BREAKER OR TAMPING MACHINE (POWER DRIVEN) MIGHTY MITE OR SIMILAR TYPE
353				PICKUP SWEEPER, ONE CUBIC YARD AND OVER HOPPER CAPACITY(HIGHWAY AND HEAVY ONLY)
354				PIPELINE WRAPPING, CLEANING OR BENDING MACHINE
355				POWER PLANT ENGINEER, 100 KWH AND OVER (HIGHWAY AND HEAVY ONLY)
356				POWER ACTUATED HORIZONTAL BORING MACHINE, OVER SIX INCHES
357				PUGMILL
358				PUMPCRETE (HIGHWAY AND HEAVY ONLY)
359				RUBBER-TIRED FARM TRACTOR WITH BACKHOE INCLUDING ATTACHMENTS (HIGHWAY AND HEAVY ONLY)
360				SCRAPER
361				SELF-PROPELLED SOIL STABILIZER
362				SLIP FORM (POWER DRIVEN) (PAVING)
363				TIE TAMPER AND BALLAST MACHINE
364				TRACTOR, BULLDOZER (HIGHWAY AND HEAVY ONLY)
365				TRACTOR, WHEEL TYPE, OVER 50 H.P. WITH PTO UNRELATED TO LANDSCAPING (HIGHWAY AND HEAVY ONLY)
366				TRENCHING MACHINE (SEWER, WATER, GAS) EXCLUDES WALK BEHIND TRENCHER (HIGHWAY AND HEAVY ONLY)
367				TUB GRINDER, MORBARK, OR SIMILAR TYPE

LABOR CODE AND CLASS	EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
368				
	WELL POINT DISMANTLING OR INSTALLATION (HIGHWAY AND HEAVY ONLY)			
GROUP 5	2020-09-28	35.85	21.55	57.40
	2021-05-03	37.00	22.55	59.55
369	AIR COMPRESSOR, 600 CFM OR OVER (HIGHWAY AND HEAVY ONLY)			
370	BITUMINOUS ROLLER (UNDER EIGHT TONS)			
371	CONCRETE SAW (MULTIPLE BLADE) (POWER OPERATED)			
372	FORM TRENCH DIGGER (POWER)			
373	FRONT END, SKID STEER UP TO 1C YD			
374	GUNITE GUNALL (HIGHWAY AND HEAVY ONLY)			
375	HYDRAULIC LOG SPLITTER			
376	LOADER (BARBER GREENE OR SIMILAR TYPE)			
377	POST HOLE DRIVING MACHINE/POST HOLE AUGER			
378	POWER ACTUATED AUGER AND BORING MACHINE			
379	POWER ACTUATED JACK			
380	PUMP (HIGHWAY AND HEAVY ONLY)			
381	SELF-PROPELLED CHIP SPREADER (FLAHERTY OR SIMILAR)			
382	SHEEP FOOT COMPACTOR WITH BLADE . 200 H.P. AND OVER			
383	SHOULDERING MACHINE (POWER) APSCO OR SIMILAR TYPE INCLUDING SELF-PROPELLED SAND AND CHIP SPREADER			
384	STUMP CHIPPER AND TREE CHIPPER			
385	TREE FARMER (MACHINE)			
GROUP 6	2020-09-28	34.64	21.55	56.19
	2021-05-03	35.79	22.55	58.34
387	CAT, CHALLENGER, OR SIMILAR TYPE OF TRACTORS, WHEN PULLING DISK OR ROLLER			
388	CONVEYOR (HIGHWAY AND HEAVY ONLY)			
389	DREDGE DECK HAND			
390	FIRE PERSON OR TANK CAR HEATER (HIGHWAY AND HEAVY ONLY)			
391	GRAVEL SCREENING PLANT (PORTABLE NOT CRUSHING OR WASHING)			
392	GREASER (TRACTOR) (HIGHWAY AND HEAVY ONLY)			
393	LEVER PERSON			
394	OILER (POWER SHOVEL, CRANE, TRUCK CRANE, DRAGLINE, CRUSHERS, AND MILLING MACHINES, OR OTHER SIMILAR HEAVY EQUIPMENT) (HIGHWAY AND HEAVY ONLY)			
395	POWER SWEEPER			
396	SHEEP FOOT ROLLER AND ROLLERS ON GRAVEL COMPACTION, INCLUDING VIBRATING ROLLERS			
397	TRACTOR, WHEEL TYPE, OVER 50 H.P., UNRELATED TO LANDSCAPING			

TRUCK DRIVERS

LABOR CODE AND CLASS	EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
GROUP 1	2020-09-28	33.35	20.25	53.60
	2021-05-01	34.85	20.25	55.10
601				MECHANIC . WELDER
602				TRACTOR TRAILER DRIVER
603				TRUCK DRIVER (HAULING MACHINERY INCLUDING OPERATION OF HAND AND POWER OPERATED WINCHES)
GROUP 2	2020-09-28	32.80	20.25	53.05
	2021-05-01	34.30	20.25	54.55
604				FOUR OR MORE AXLE UNIT, STRAIGHT BODY TRUCK
GROUP 3	2020-09-28	35.18	20.50	55.68
605				BITUMINOUS DISTRIBUTOR DRIVER
606				BITUMINOUS DISTRIBUTOR (ONE PERSON OPERATION)
607				THREE AXLE UNITS
GROUP 4	2020-09-28	31.95	19.01	50.96
608				BITUMINOUS DISTRIBUTOR SPRAY OPERATOR (REAR AND OILER)
609				DUMP PERSON
610				GREASER
611				PILOT CAR DRIVER
612				RUBBER-TIRED, SELF-PROPELLED PACKER UNDER 8 TONS
613				TWO AXLE UNIT
614				SLURRY OPERATOR
615				TANK TRUCK HELPER (GAS, OIL, ROAD OIL, AND WATER)
616				TRACTOR OPERATOR, UNDER 50 H.P.
SPECIAL CRAFTS				
701	2020-09-28	43.56	20.20	63.76
	2021-06-07	45.56	20.20	65.76
702	2020-09-28	39.69	28.82	68.51
	2021-01-01	41.39	28.82	70.21
703	2020-09-28	32.91	22.82	55.73
704	2020-09-28	36.92	23.56	60.48
	2021-05-04	38.97	23.56	62.53
705	2020-09-28	32.13	12.85	44.98

LABOR CODE AND CLASS	EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE	
706	CEMENT MASONS	2020-09-28	33.53	18.50	52.03
		2021-05-01	35.58	18.50	54.08
707	ELECTRICIANS	2020-09-28	39.77	28.11	67.88
		2021-06-02	41.36	28.83	70.19
711	GROUND PERSON	2020-09-28	33.40	16.30	49.70
712	IRONWORKERS	2020-09-28	33.99	30.70	64.69
		2021-05-01	36.19	30.70	66.89
713	LINEMAN	2020-09-28	47.71	20.31	68.02
714	MILLWRIGHT	2020-09-28	39.04	21.72	60.76
		2021-05-03	40.99	21.72	62.71
715	PAINTERS (INCLUDING HAND BRUSHED, HAND SPRAYED, AND THE TAPING OF PAVEMENT MARKINGS)	2020-09-28	31.39	19.99	51.38
716	PILEDRIIVER (INCLUDING VIBRATORY DRIVER OR EXTRACTOR FOR PILING AND SHEETING OPERATIONS)	2020-09-28	38.96	25.03	63.99
		2021-05-03	41.01	25.03	66.04
717	PIPEFITTERS . STEAMFITTERS	2020-09-28	44.00	22.90	66.90
719	PLUMBERS	2020-09-28	41.02	22.03	63.05
721	SHEET METAL WORKERS	2020-09-28	44.46	29.17	73.63
723	TERRAZZO WORKERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVVAGE@STATE.MN.US			
724	TILE SETTERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVVAGE@STATE.MN.US			
725	TILE FINISHERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVVAGE@STATE.MN.US			
727	WIRING SYSTEM TECHNICIAN	2020-09-28	41.42	18.16	59.58

LABOR CODE AND CLASS	EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE	
728	WIRING SYSTEMS INSTALLER	2020-09-28	28.14	14.31	42.45
729	ASBESTOS ABATEMENT WORKER	2020-09-28	35.58	17.15	52.73
730	SIGN ERECTOR	FOR RATE CALL 651-284-5091 OR EMAIL <u>DLI.PREVVAGE@STATE.MN.US</u>			

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Notice of truck rental rate certification and effective date

The Department of Labor and Industry (DLI) temporary commissioner has certified the minimum truck rental rates for state-funded highway projects effective Dec. 21, 2020. This certification follows the publication of the Notice of Truck Rental Rate Determination in the *State Register* on Nov. 30, 2020, and the informal conference held pursuant to Minnesota Rules, part 5200.1105, Dec. 11, 2020.

According to Minnesota Rules, part 5200.1105, the purpose of the informal conference was for DLI to obtain further input regarding the determined rates prior to the certification. No written input regarding the determination was received by DLI prior to the informal conference.

The truck rental rate is determined for each equipment type by adding the average hourly cost of operating the vehicle to the certified prevailing wage rate for the driver. The average hourly operating costs are determined by voluntary survey of truck owner operators, trucking contractors and trucking firms.

The determination of the minimum truck rental rates by region are as follows.

Three-axle units

Region	Effective date	607 driver rate	Operating cost	Truck rental rate
Region 1	Certification date	\$55.68	\$37.35	\$93.03
Region 2	Certification date	\$46.75	\$37.35	\$84.10
Region 3	Certification date	\$45.02	\$37.35	\$82.37
Region 4	Certification date	\$46.75	\$37.35	\$84.10
Region 5	Certification date	\$34.91	\$37.35	\$72.26
Region 6	Certification date	\$44.70	\$37.35	\$82.05

Region	Effective date	607 driver rate	Operating cost	Truck rental rate
Region 7	Certification date	\$44.70	\$37.35	\$82.05
Region 8	Certification date	\$43.25	\$37.35	\$80.60
Region 9	Certification date	\$30.91	\$37.35	\$68.26
Region 10	Certification date	\$44.45	\$37.35	\$81.80

Four or more axle units

Region	Effective date	604 driver rate	Operating cost	Truck rental rate
Region 1	Certification date	\$53.05	\$45.89	\$98.94
	Increase May 1, 2021	\$54.55	\$45.89	\$100.44
Region 2	Certification date	\$41.51	\$45.89	\$87.40
Region 3	Certification date	\$38.51	\$45.89	\$84.40
Region 4	Certification date	\$37.80	\$45.89	\$83.69
Region 5	Certification date	\$32.46	\$45.89	\$78.35
Region 6	Certification date	\$39.40	\$45.89	\$85.29
Region 7	Certification date	\$43.00	\$45.89	\$88.89
Region 8	Certification date	\$28.41	\$45.89	\$74.30
Region 9	Certification date	\$48.20	\$45.89	\$94.09
Region 10	Certification date	\$26.00	\$45.89	\$71.89

Tractor

Region	Effective date	602 driver rate	Operating cost	Tractor Only Truck Rental Rate	Plus Trailer Operating Cost	Tractor Trailer Rental Rate
Region 1	Certification date	\$53.60	\$54.96	\$108.56	\$11.46	\$120.02
	Increase May 1, 2021	\$55.10	\$54.96	\$110.06	\$11.46	\$121.52
Region 2	Certification date	\$42.02	\$54.96	\$96.98	\$11.46	\$108.44
Region 3	Certification date	\$46.55	\$54.96	\$101.51	\$11.46	\$112.97
Region 4	Certification date	\$48.75	\$54.96	\$103.71	\$11.46	\$115.17
Region 5	Certification date	\$37.65	\$54.96	\$92.61	\$11.46	\$104.07
Region 6	Certification date	\$41.40	\$54.96	\$96.36	\$11.46	\$107.82
Region 7	Certification date	\$41.40	\$54.96	\$96.36	\$11.46	\$107.82
Region 8	Certification date	\$28.91	\$54.96	\$83.87	\$11.46	\$95.33
Region 9	Certification date	\$48.75	\$54.96	\$103.71	\$11.46	\$115.17
Region 10	Certification date	\$38.75	\$54.96	\$93.71	\$11.46	\$105.17

The minimum truck rental rate for these four types of trucks in the state's 10 highway and heavy construction areas will be effective for all Minnesota Department of Transportation (MnDOT) highway construction work financed in whole or part with state funds advertised for bid on or after the day the notice of certification is published in the *State Register*.

Roslyn Robertson
DLI temporary commissioner

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EQUAL EMPLOYMENT OPPORTUNITY (EEO) SPECIAL PROVISIONS

This section of Special Provisions contains the Equal Employment Opportunity (EEO) rules and regulations for highway construction projects in Minnesota which are federally and/or State funded.

The source of funding determines which EEO regulations and goals (Federal and/or State goals) apply to a specific project. When a project contains funding from both Federal and State sources, both sets of regulations apply, and the Minnesota Department of Transportation (MnDOT) monitors and reviews projects at both levels.

If the project contains any Federal funding, and has a total dollar value exceeding \$10,000, Federal EEO regulations and goals apply (pages 2, 6, 7-8, 9-14, 15, 16-17, 22-26, 27-38). The MnDOT Office of Civil Rights monitors and reviews these projects on behalf of the Federal Highway Administration (FHWA), under Federal statutes (23 USC 140) and rules (23 CFR 230).

If the project contains any State funding, and has a total dollar value exceeding \$100,000, State EEO regulations and goals apply (pages 2, 3, 4, 5, 6, 9-14, 16-22). MnDOT's Office of Civil Rights monitors and reviews these projects in conjunction with the Minnesota Department of Human Rights under Minnesota Statutes §363A.36 and its accompanying rules.

MnDOT has established a single review and monitoring process which meets both Federal and State requirements.

Please note that Pages 23-38 of these Special Provisions may be omitted from projects with no Federal funding.

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**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION
TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY
(23 USC 140, 23 CFR 230 and Minnesota Statute §363A.36)**

1. The offerer's or bidder's attention is called to the "Minnesota Affirmative Action Requirements" (EEO Page 4), the "Specific Federal Equal Employment opportunity Responsibilities" (EEO Pages 7-8), the "Standard Federal and State Equal Employment Opportunity Construction Contract Specifications" (EEO Pages 9-14), the "Equal Opportunity Clause" (EEO Page 15) and "Required Contract Provisions - Federal-Aid Construction Contracts" (EEO Pages 27-38).
2. The goals and timetables for minority and women participation, expressed in percentage terms of hours of labor for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as shown on EEO Pages 16-17.

These goals are applicable to all the Contractor's construction work (whether or not it is State or State assisted, Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the regulations in 41 CFR Part 60-4, and/or Minnesota Statutes §363A.36 and its accompanying rules shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a) for Federal or federally assisted projects, and Minnesota Statutes §363A.36, and its accompanying rules for State or State assisted projects, and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and women employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority and women employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4 for Federal or federally-assisted projects and/or Minnesota Statutes §363A.36 and its accompanying rules for state or state-assisted projects. Compliance with the goals will be measured against the total work hours performed.

3. If the contract is federally funded, the Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within ten working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. If the contract is state funded, the Contractor shall provide written notification to the Compliance Division, Minnesota Department of Human Rights, Freeman Building, 625 Robert Street North, Saint Paul, Minnesota 55155 within ten working days of award of any construction subcontract in excess of \$100,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the Subcontractor; employer identification number of the Subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.
4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is the county or counties of the State of Minnesota where the work is to be performed.

**NOTICE TO ALL PRIME AND SUBCONTRACTORS
PRE-AWARD REPORTING REQUIREMENTS**

In order to ensure compliance with Federal and State laws and regulations (23 USC 140, and 23 CFR 230, and Minnesota Statutes §363A.36) and to ensure Mn/DOT's ability to monitor and enforce compliance efforts, the following requirements apply if the apparent low bid exceeds \$ 5,000,000.00:

- 1) The Apparent Low Bidder ("ALB") must provide to Mn/DOT the "EEO-8 Form" (also entitled "EEO Compliance Review Report"), which must provide detail on the contractor's total company workforce in the State of Minnesota during the twelve month period preceding July 30th of the previous year (Office and/or clerical personnel need not to be included).
- 2) The ALB must provide to Mn/DOT a work plan for meeting the minority and women employment goals established by the Minnesota Department of Human Rights, for the project in question. The work plan must include, at a minimum (1) how the ALB will incorporate its current minority and women employees in the ALB's efforts to meet the established goals; and (2) a contingency plan if the ALB has determined that its current workforce is not sufficient in order to achieve the established employment goals. If the ALB relies in whole or in part upon unions as a source of employees, then the ALB must (1) include a list of established organizations that are likely to yield qualified minority and women candidates if those union(s) are unable to provide a reasonable flow of minority and women candidates in their work plan; and (2) document the method by which these organizations will refer candidates to the ALB for employment opportunities. All bidders are hereby notified that the U.S. Department of Labor has determined that a contractor will not be excused from complying with the Federal and State laws and regulations cited above based solely on the fact that a contractor has a collective bargaining agreement with a union providing for the union to be the exclusive source of referral and that the union failed to refer minority employees. A contractor may obtain a list of organizations likely to yield qualified minority and women candidates from the Mn/DOT Office of Civil Rights.
- 3) The ALB must provide to Mn/DOT the ALB's total workforce and labor projections for the project (represented in hours), the ALB's projected total number of minority hours for the project, and the ALB's projected total number of women hours for the project. The details must include the trade(s) that will be utilized in order to complete the project.

The ALB must submit documents as required to comply with this section no later than five business days after the date that bids for the contract are opened. The five day period starts the business day following the date that bids were opened. The required documents must be received prior to Contract Award, and must be sent to the Mn/DOT Office of Civil Rights – 395 John Ireland Blvd., Mail Stop 170 St. Paul, MN 55155-1899. Submittal of the documents described in (1), (2) and (3) is required for contract award to the ALB. The submitted documents will be used as a tool to assist contractors in meeting employment goals; the content itself will not be evaluated for the purpose of determining contract award.

MINNESOTA AFFIRMATIVE ACTION REQUIREMENTS

1. It is hereby agreed between the parties to this contract that Minnesota Statutes, Section §363A.36, and its accompanying rules are incorporated into any contract between these parties based upon this specification or any modification of it. A copy of Minnesota Statutes, Section §363A.36, and its accompanying rules is available upon request from the contracting agency. The Contractor hereby agrees to comply with the rules and relevant orders of the Minnesota Department of Human Rights issued pursuant to the Minnesota Human Rights Act.
2. It is hereby agreed between the parties to this contract that this agency requires that the Contractor meet affirmative action criteria as provided for by Minnesota Statutes §363A.36 and its accompanying rules. It is the intent of the Minnesota Department of Transportation to fully carry out its responsibility for requiring affirmative action, and to implement sanctions for failure to meet these requirements. Failure by a contractor to implement an affirmative action plan, meet project employment goals for minority and women employment or make a good faith effort to do so may result in revocation of his/her Certificate of Compliance or suspension or revocation of the contract (Minnesota Statutes §363A.36).
3. Under the affirmative action obligation imposed by the Human Rights Act, Minnesota Statutes, Section §363A.36, contractors shall take affirmative action to employ and advance in employment minority, female, and qualified disabled individuals at all levels of employment. Affirmative action must apply to all employment practices, including but not limited to hiring, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor shall recruit, hire, train and promote persons in all job titles, without regard to race, color, creed, religion, sex, national origin, marital status, status with regard to public assistance, physical or mental disability, sexual orientation or age except where such status is a bona fide occupational qualification. These affirmative action requirements of the Minnesota Human Rights Act are consistent with but broader than the Federal requirements as covered in this contract.
4. Affirmative Action for disabled workers. The Contractor shall not discriminate against any employee or applicant for employment because of a physical or mental disability in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment, and otherwise treat qualified disabled individuals without discrimination based upon their physical or mental disability in all employment practices such as employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training (including apprenticeship). In the event of the Contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with Minnesota Statutes, section §363A.36 and the rules and relevant orders of the Minnesota Department of Human Rights pursuant to the Minnesota Human Rights Act.
5. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the commissioner of the Minnesota Department of Human Rights. Such notices shall state the Contractor's obligation under the law to take affirmative action to employ and advance in employment minority, women and qualified disabled employees and applicants for employment, and the rights of applicants and employees. **A poster entitled "Contractor Non-discrimination is the Law" may be obtained from: Compliance Unit, Minnesota Department of Human Rights, Freeman Building, 625 Robert Street North, Saint Paul, Minnesota 55155. (651) 539-1100, TTY 296-1283, Toll Free 1-800-657-3704.**
6. The Contractor shall notify each labor union or representative of workers with which he/she has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of Minnesota Statutes, section §363A.36 of the Minnesota Human Rights Act, and is committed to take affirmative action to employ and advance in employment minority, women and qualified physically and mentally disabled individuals.

APPROPRIATE WORK PLACE BEHAVIOR ON Mn/DOT CONSTRUCTION PROJECTS UTILIZING STATE FUNDS

It is the Minnesota Department of Transportation's (MnDOT's) policy to provide a workplace free from violence, threats of violence, harassment and discrimination. MnDOT has established a policy of zero tolerance for violence in the workplace. Contractors who perform work on MnDOT construction projects, or local government entities or public agencies utilizing state funds on highway construction projects, shall maintain a workplace free from violence, harassment and discrimination (See definitions, below).

Definitions:

1. Violence is the threatened or actual use of force which results in or has a high likelihood of causing fear, injury, suffering or death. Employees are prohibited from taking reprisal against anyone who reports a violent act or threat.

2. Harassment is the conduct of one employee (toward another employee) which has the purpose or effect of 1) unreasonably interfering with the employee's work performance, and/or 2) creating an intimidating, hostile or offensive work environment. Harassment is not legitimate job-related efforts of supervisor to direct/evaluate an employee or to have an employee improve work performance.

A. Unlawful discriminatory harassment is harassment which is based on these characteristics: race, color, creed, religion, national origin, sex, disability, age, marital status, status with regard to public assistance or sexual orientation. Managers, supervisors and employees shall not take disciplinary or retaliatory action against employees who make complaints of sexual harassment.

Sexual harassment is unwelcome sexual advances, requests for sexual favors, or sexually motivated physical contact, or other verbal or physical conduct or communication of a sexual nature, when submission to that conduct or communication is 1) made a term or condition, either explicitly or implicitly, of obtaining employment; or 2) is used as a factor in decisions affecting an individual's employment; or 3) when that conduct or communication has the purpose or effect of substantially interfering with an individual's employment or creating an intimidating, hostile or offensive work environment, and the employer knows or should have known of the existence of the harassment and fails to take timely and appropriate action. Examples include but are not limited to insulting or degrading sexual remarks or conduct; threats, demands or suggestions that status is contingent upon toleration or acquiescence to sexual advances; displaying in the workplace sexually suggestive objects, publications or pictures, or retaliation against employees for complaining about the behavior cited above or similar behaviors.

B. General harassment is harassment which is not based on the above characteristics. Examples may include, but are not limited to: physically intimidating behavior and/or threats of violence; use of profanity (swearing), vulgarity; ridiculing, taunting, belittling or humiliating another person; inappropriate assignments of work or benefits; derogatory name calling.

3. Discrimination includes actions which cause a person, solely because of race, color, creed, religion, national origin, sex, disability, age, marital status, status with regard to public assistance or sexual orientation to be subject to unequal treatment.

Prime Contractors who work on MnDOT projects shall ensure that their managers, supervisors, foremen/women and employees are familiar with MnDOT's policy on appropriate work place behavior; and shall ensure that their subcontractors are familiar with this policy. Managers, supervisors and foremen/women will respond to, document, and take appropriate action in response to all reports of violence, threats of violence, harassment or discrimination. Failure to comply with this policy may result in cancellation, termination or suspension of contracts or subcontracts currently held and debarment from further such contracts or subcontracts as provided by statute. If you need additional information or training regarding this policy, please contact the Office of Civil Rights at (651) 366-3073.

NOTICE TO ALL PRIME AND SUBCONTRACTORS REPORTING REQUIREMENTS

1. In order to monitor compliance with Federal Statutes 23 USC 140 and 23 CFR 230, and Minnesota Statutes §363A.36, all prime contractors and subcontractors are required to complete a Mn/DOT Monthly Employment Compliance Report each month for each project (Form EEO-13, sample copy at EEO Pages 20-21.) Prime contractors are also required to complete a Contractor Employment Data Report (Form EEO-12, sample copy at EEO Pages 18-19) once prior to work commencing on the project, unless one has been completed already within the calendar year.

The prime contractor of each project collects Monthly Employment Compliance Reports from each subcontractor who performed work during the month, and completes a Monthly Employment Compliance Report on its own work force. **For the month of July only, an EEO-13 is required for each payroll period within the month of July.** The prime contractor submits the EEO-13 forms to the Mn/DOT Project Engineer by the 15th day of the subsequent month.

Failure to submit the required reports in the allowable time frame will be cause for the imposition of contract sanctions.

It is the intent of Mn/DOT to implement monitoring measures on each project to ensure that each prime contractor and subcontractor is promoting the full realization of equal employment opportunities. Any project may be scheduled for an in depth on-site contract compliance review. During the scheduled on-site review, the Contractor will be required to provide to Mn/DOT documentation of its "good faith efforts" as shown in EEO Pages 10-13, at 7 a-p of this contract.

2. If a Federally funded project requires On-the-Job-Training (OJT) participation, information is provided in the contract and can be located by referring to the Table of Contents for Division S. (OJT is also listed as a bid line item under Trainees.) When a contract requires OJT participation, the Prime Contractor shall submit a training plan as indicated in the Proposal. The training plan shall include the job classification titles of trainees, planned training activities and the approximate start date of trainees.
3. When a Contractor selects a trainee applicant for OJT, the Contractor completes an On the Job Training Program-Trainee Assignment form (sample copy at EEO Page 23) and submits it to the Contract Compliance Specialist (CCS) assigned to the project for approval. The CCS notifies the Contractor and Project Engineer when the applicant is approved.
4. Hours of work performed by OJT employees shall be documented on a monthly basis on the Certification of On-The-Job Training Hours form, (Mn/DOT Form No. 21860, sample copy at EEO Page 24). The Contractor shall submit the original and one copy to the Project Engineer, and one copy to the CCS assigned to the project.

Do not remove forms from this contract. Please duplicate forms from the copies in this contract, or the Mn/DOT Office of Civil Rights will provide these forms upon request. Please call the Office of Civil Rights, (651) 366-3073.

**STANDARD FEDERAL AND STATE EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS
(41 CFR 60-4.3 and Minnesota Statute §363A.36)**

Unless noted, the following apply to both Federal/federally assisted projects and State/state assisted projects. Item 3 applies to Federal/federally assisted projects only

1. As used in these specifications:
 - a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
 - b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
 - c. "Employer Identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
 - d. "Minority" includes:
 - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 (\$100,000 for State projects) the provisions of these specifications and the Notice which contains the applicable goals for minority and women participation and which is set forth in the solicitations from which this contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60-4, 5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work on the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7(a) to (p) of these specifications (itemized as 4 [a] to [o], Minnesota Rules

**STANDARD FEDERAL AND STATE EEO CONSTRUCTION
CONTRACT SPECIFICATIONS (cont.)**

5000.3535). The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minorities and utilization the Contractor should (shall, for State or state assisted projects) reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor shall make substantially uniform progress toward its goals in each craft during the period specified. Covered construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Federal goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any office of Federal Contract Compliance programs or from Federal procurement contracting officers. State goals are published periodically in the State Register in notice form, and may be obtained from the Minnesota Department of Human Rights or the Minnesota Department of Transportation Office of Civil Rights. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement nor the failure by a union, with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications and Executive Order 11246 and its associated rules and regulations for Federal or federally assisted projects, and Minnesota Statutes, Section §363A.36 of the Minnesota Human Rights Act, or the rules adopted under the Act for State or state assisted projects.
6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees shall be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees shall be trained according to training programs approved by the Minnesota Department of Human Rights, the Minnesota Department of Labor and Industry, or the United States Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications must be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following (referred to in Minnesota Rules 5000.3535 as items 4(a) to (o):
 - (a) Ensure and maintain, or for State or state assisted projects make a good faith effort to maintain, a working environment free of harassment, intimidation, and coercion at all sites and in all facilities at which the Contractor's employees are assigned to work. For

**STANDARD FEDERAL AND STATE EEO CONSTRUCTION
CONTRACT SPECIFICATIONS (cont.)**

Federal or federally assisted projects, the Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or women individuals working at such sites or in such facilities.

- (b) Establish and maintain a current list of minority and women recruitment sources, provide written notification to minority and women recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
- (c) Maintain a current file of the names, addresses, and telephone numbers of each minority and woman off-the-street applicant and minority or woman referral from a union, a recruitment source, or community organization and of what action was taken with respect to each individual. If the individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the Contractor may have taken.
- (d) Provide immediate written notification to the commissioner of the Minnesota Department of Human Rights for State or state assisted projects, or the director of the Office of Federal Contract Compliance for Federal or federally assisted projects, when the union, or unions with which the Contractor has a collective bargaining agreement, has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
- (e) Develop on-the-job training opportunities and/or participate in training programs for the areas which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the State of Minnesota for State or state assisted projects or the Department of Labor, for Federal or federally assisted projects. The Contractor shall provide notice of these programs to the sources compiled under (b).
- (f) Disseminate the Contractor's equal employment opportunity policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its equal employment opportunity obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and women employees at least once a year; and by posting the company equal employment opportunity policy on bulletin boards accessible to all employees at each location where construction work is performed.

**STANDARD FEDERAL AND STATE EEO CONSTRUCTION
CONTRACT SPECIFICATIONS (cont.)**

- (g) Review, at least annually, the company's equal employment opportunity policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions; including specific review of these items with onsite supervisory personnel such as superintendents, general foremen, etc., prior to the first day of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- (h) Disseminate the Contractor's equal employment opportunity policy externally by including it in any advertising in the news media, specifically including minority and women news media, and providing written notification to and discussing the Contractor's equal employment opportunity policy with other contractors and subcontractors with whom the Contractor does or anticipates doing business.
- (i) Direct its recruitment efforts, both oral and written, to minority, women, and community organizations; to schools with minority and women students; and to minority and women recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- (j) Encourage present minority and women employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and women youth, both on the site and in other areas of a Contractor's work force.
- (k) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3. (This requirement applies only to Federal and federally assisted projects.)
- (l) Conduct, at least annually, an inventory and evaluation at least of all minority and women personnel for promotional opportunities; and encourage these employees to seek or to prepare for, through appropriate training, such opportunities. (This is Item 4(k) in Minnesota Rules.)
- (m) Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the equal employment opportunity policy and the Contractor's obligations under these specifications are being carried out. (This is item 4(l) in Minnesota Rules.)

**STANDARD FEDERAL AND STATE EEO CONSTRUCTION
CONTRACT SPECIFICATIONS (cont.)**

- (n) Ensure that all facilities and company activities are non segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes. (This is item 4(m) in Minnesota Rules.)
 - (o) Document and maintain a record of all solicitations or offers for subcontracts from minority and women construction contractors and suppliers, including circulation of solicitations to minority and women contractor associations and other business associations. (This is item 4(n) in Minnesota Rules.)
 - (p) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's equal employment opportunity policies and affirmative action obligations. (This is item 4(o) in Minnesota Rules.)
8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7(a) to (p) for Federal or federally assisted projects, and 4(a)-(o) for State or state assisted projects). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7(a) to (p) or 4(a) to (o) of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and women work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor however, is required to provide equal employment opportunity and to take affirmative action for all minority groups both male and female, and all women both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order for Federal or federally assisted projects, or Minnesota Rules for State or state assisted projects, if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order or Minnesota Rules part 5000.3520 if a specific minority group is under-utilized).
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, creed, religion, sex, or national origin. Minnesota Statutes §363A.36, part 5000.3535 (Subp. 7) also prohibits discrimination with regard to marital status, status with regard to public assistance, disability, age, or sexual orientation.

**STANDARD FEDERAL AND STATE EEO CONSTRUCTION
CONTRACT SPECIFICATIONS (cont.)**

11. The Contractor shall not enter into any subcontract with any person or firm debarred from government contracts under the federal Executive Order 11246 or a local human rights ordinance, or whose certificate of compliance has been suspended or revoked pursuant to Minnesota Statutes, Section §363A.36.
12. The Contractor shall carry out such sanctions for violation of these specifications and of the equal opportunity clause, including suspension, termination, and cancellation of existing contracts as may be imposed or ordered pursuant to Minnesota Statutes, Section §363A.36, and its implementing rules for State or state assisted projects, or Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs for Federal or federally assisted projects. Any contractor who fails to carry out such sanctions shall be in violation of these specifications and Minnesota Statutes, Section §363A.36, or Executive Order 11246 as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications (paragraph 4 in Minnesota Rules 5000.3535), so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of these Specifications or Minnesota Statutes, Section §363A.36 and its implementing rules, or Executive Order 11246 and its regulations, the commissioner or the director shall proceed in accordance with Minnesota Rules part 5000.3570 for State or state assisted projects, or 41 CFR 60-4.8 for Federal or federally assisted projects.
14. The Contractor shall designate a responsible official to monitor all employment-related activity to ensure that the company equal employment opportunity policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Minnesota Department of Human Rights or the Government, and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (for example, mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing provided in this part shall be construed as a limitation upon the application of other state or federal laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents.

EQUAL OPPORTUNITY CLAUSE
(41 CFR Part 60-1.4 b, 7-1-96 Edition)

The applicant hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:

During the performance of this contract, the Contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoffs or termination; rates of pay or other forms of compensation; and, selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Highway Agency (SHA) setting forth the provisions of this nondiscrimination clause.
2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.
3. The Contractor will send to each labor union or representative of workers with which the Contractor has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The Contractor will comply with all provisions of Executive Order 11246, Equal Employment Opportunity, dated September 24, 1965, and of the rules, regulations (41 CFR Part 60), and relevant orders of the Secretary of Labor.
5. The Contractor will furnish all information and reports required by Executive Order 11246 and by rules, regulations, and orders of the Secretary of Labor, pursuant thereto, and will permit access to its books, records, and accounts by the Federal Highway Administration (FHWA) and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
6. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract, or with any of such rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part, and the Contractor may be declared ineligible for further Government contracts or federally-assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions as may be imposed and remedies invoked as provided in Executive Order 11246 or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
7. The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraph (1) through (7) in every subcontract or purchase order so that such provisions will be binding upon each subcontractor or vendor, unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246. The Contractor will take such action with respect to any subcontract or purchase order as the Secretary of Labor, SHA, or the Federal Highway Administration (FHWA) may direct as a means of enforcing such provisions, including sanctions for noncompliance. In the event a contractor becomes a party to litigation by a subcontractor or vendor as a result of such direction, the contractor may request the SHA to enter into such litigation to protect the interest of the State. In addition, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: *Provided*, that if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

Minnesota Department of Transportation
 Office of Civil Rights
 Contractor Employment Data

1. Contractor Name and Address:

Phone: _____

2. Employment Data		b) Social Security #	c) New Hire (Y or N)	d) Ethnicity	e) Gender (M or F)	f) Trade/Foreman, Supervisors, Managers	g) Level (A, J, or T)
a) Name: Last Name, First Name, MI							
1.							
2.							
3.							
4.							
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6.							
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26.							
27.							

INSTRUCTIONS FOR EEO-12 CONTRACTOR EMPLOYMENT DATA

This form should be submitted at the Pre-Con to the Project Engineer prior to the start of your first MnDOT construction project for the calendar year (Prime and Subs)

1. Contractor Name and Address self-explanatory.
2. Employment Data information will coincide with your employment records.
 - 2a. Name should be listed First Name, Middle Initial, and Last Name. This will enable MnDOT EEO staff to readily identify individuals on all projects.
 - 2b. Social Security Number self-explanatory.
 - 2c. New Hire is to be indicated with a “Y” for Yes or an “N” for No. “New Hire” is an employee who has not worked for you in any capacity or on any other project within the current calendar year.
 - 2d. Ethnicity can be indicated by Black (B), Hispanic (H), American Indian/Alaskan Native (AI), Asian/Pacific Islander (AP), or White (W).
 - 2e. Gender is to be indicated with an “M” for Males or an “F” for Females.
 - 2f. Trade/Foreman, Supervisors, Managers self-explanatory. List trade that applies unless the employee fits one of the other three categories.
 - 2g. Level “A” is for an Apprentice, “J” is for a Journey Worker, and “T” is for a MnDOT approved Trainee.

If you have questions about filling out this form, contact the Office of Civil Rights at (651) 366-3073.
(Please make copies as you need them.)

This information can be submitted electronically via the web, through MnDOT’s Work force Information Tracking Initiative (WITI) Program. To open a free account to gain access to WITI or to find out more about this possibility please contact MnDOT’s Office of Civil Rights at (651) 366-3015.

Minnesota Department of Transportation EEO Special Provisions
Office of Civil Rights

Revised 07/12

Minnesota Department of Transportation Office of Civil Rights Monthly Employment Compliance Report EEO-13		1. SP <input type="checkbox"/> SAP <input type="checkbox"/> (Check one) SP# _____ County or City _____ 2. Reporting Period _____ to _____		3. Contractor Name: Federal Tax ID: Street Address: _____ City, State Zip _____		4. Prime <input type="checkbox"/> Subcontractor <input type="checkbox"/> (check one) 5. Dollar Amount of Contract: _____ 6. Percent of Completion: _____									
7. Employment Data a) Name: Last, First Middle Initial		b) Social Security #		c) New Hire (Y or N)		d) Ethnicity		e) Gender (M or F)		Trade/Foreman, Supervisors, Managers		g) Level (A, J or T)		h) Hours Worked This Period	
1.															
2.															
3.															
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19.															
20.															
8. Contract Goals MINNESOTA GOALS %OBTAINED _____ % Minority _____ % _____ % Women _____ %		9. Prepared by: (Signature) _____ Print Name: _____ Title: _____ Date: _____ Phone: _____ Fax: _____													
10. Reviewed by: (Signature) _____ Print Name: _____ Title: _____ Date: _____ Phone: _____ Fax: _____															

INSTRUCTIONS FOR EEO-13

MONTHLY EMPLOYMENT COMPLIANCE REPORT

- 1.-5. Self-explanatory – State **Project #**, county project is located in, are you a prime or sub, and contract value.
 6. Percent of Completion is the estimated percentage of work completed including this reporting period.
 7. Employment Data information will coincide with your employment records. All professional, supervisory and managerial hours actually worked on the project site must be included, whether or not they appear on the certified payroll.
 - 7a. Name should be listed Last Name, First Name, and Middle Initial. This will enable MnDOT EEO staff to readily identify individuals on all projects.
 - 7b. Social Security Number self-explanatory.
 - 7c. New Hire is to be indicated with a “Y” for Yes or an “N” for No. “New Hire” is an employee who has not worked for you in any capacity or on any other project within the current calendar year.
 - 7d. Ethnicity can be indicated by Black (B), Hispanic (H), American Indian/Alaskan Native (AI), Asian/Pacific Islander (AP), or White (W).
 - 7e. Gender is to be indicated with an “M” for Males or an “F” for Females.
 - 7f. Trade/Foreman, Supervisors, Managers list the trade that applies unless the employee fits one of the other three categories.
 - 7g. Level “A” is for an Apprentice, “J” is for a Journey Worker, and “T” is for a MnDOT approved Trainee.
 - 7h. Hours Worked for This Period will be all hours worked by the individual, for each trade, during the specified reporting period.
 8. Contract Goals are the percent of total project hours to be worked by minority and women employees. The goals are determined by the geographic location and source of funding for the project. Projects in excess of \$100,000 with any State funding must meet the State Employment Goals. Projects in excess of \$10,000 with any Federal funding must meet the Federal Employment Goals. (See chart on EEO Pages 16-17.) Minority and women employee hours shall be distributed evenly throughout the length of the project and in every trade and craft that performs work on the project.

% Obtained is the percent of the total project hours worked by minority and women employees, up to and including this reporting period.
 9. Prepared by Contractor Designee is the signature of the prime or subcontractor’s EEO officer/designee.
 10. Reviewed by Project Engineer is the signature of the MnDOT staff monitoring the project.
- The Prime Contractor will submit EEO-13 forms for its workforce and all subcontractors to the MnDOT Project Engineer by the 15th day of the month following the month when work was performed. If you have questions about filling out this form, contact the Office of Civil Rights at (651) 366-3073. (Please make copies as you need them.)

This information can be submitted electronically via the web, through MnDOT’s Workforce Information Tracking Initiative (WITI) Program. To open a free account to gain access to WITI or to find out more about this possibility please contact MnDOT’s Office of Civil Rights at (651) 366-3321.

EEO COMPLIANCE REVIEW REPORT

Total Company Workforce
(For 12 Month Period Preceding July 30th of the previous year)

Name and Address of Contractor

Name and Title of Corporate Officer

Name of EEO Officer

Job Categories	Total Employees		Total Minorities		Blacks		Asian/ Pacific Is.		American Indian		Hispanic		On-the-Job Trainees	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Officials (Managers)														
Supervisors														
Foremen/Women														
Clerical														
Equipment Operators														
Mechanics														
Truck Drivers														
Iron Workers														
Carpenters														
Cement Masons														
Electricians														
Pipefitters & Plumbers														
Painters														
Laborers														
Misc. Trades														
Total														
On-the-Job Trainees														

CONDITIONS OF THE CONTRACT

for

2021 Street & Utility Improvements

SAP 038-630-001

SAP 038-635-001

SAP 038-620-010

City Streets: 4th Ave., 5th Ave. & 6th Ave.

Lake County & City of Two Harbors
Lake County, MN

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SECTION 01110 - 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 01230 "Alternates and Alternatives" 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 and performance of the Work.
- 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.

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

PROPOSED PROJECT SCHEDULE Completion Date:

Project Title: 2021 Street & Utility Improvements, SAP 038-630-001, SAP 038-635-001, SAP 038-620-010 By: Lake County, BMI Project #: U17.120606 & N16.121170

The Contractor is REQUIRED to provide a project schedule

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	CSAH 30 8th Street 5 th Ave. to 7 th Ave.																		
BLOCK # 2	CSAH 30 & 35 4 th Ave. & 5 th Ave. east of 8 th St.																		
BLOCK # 3	6 th Ave. east of 8 th St. west of 8 th St.																		
BLOCK # 4	5 th Ave. west of 8 th St.																		
BLOCK # 5	4 th Ave. west of 8 th St.																		
PRELIMINARY ITEMS:																			
Removal of Existing:																			
SANITARY SEWER:																			
Mainline Sanitary Sewer																			
Service Laterals																			
Lift Station																			
Force Main																			
WATER DISTRIBUTION:																			
Water Mains																			
STORM SEWER																			
Mainline Storm Sewer																			
Catch Basin Leads																			
STREET / ROADWAY																			
Excavation / Rough Grading																			
Subgrade Preparation																			
Subdrains																			
Aggregate Base																			
Curb & Gutter																			
Bituminous Base																			
Sidewalks & Driveways																			
Seeding / Sodding / Planting																			

****END OF SECTION****

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SECTION 01230 - ALTERNATES / ALTERNATIVES

PART 1 - GENERAL

1.1 SUMMARY

- A. This section shall govern the interpretation and evaluation of bid alternates and contractor proposed alternatives.
- B. The Owner reserves the right to reject any bids not complying with the requirements of this section.
- C. All bids must include a bid based on the "Base Bid" or the Contract Documents defined alternatives, as specified, without anticipation of the use of "or equal" items or contractor proposed alternatives. Bids solely based on the use of "or equal" items or contractor proposed alternatives may be rejected without consideration, at the discretion of the Owner.
- D. Qualification process
 1. Installers wishing to qualify alternate methods and/or materials for this project must submit a copy of the license or certificate verifying the manufacturer's or licensor's approval, and evidence of the installer's experience including the number, total length, and locations of construction projects installed to date using the proposed materials and methods together with the names and phone numbers of facility owners to the Engineer 10 days prior to the opening of bids to allow time for evaluation.
 2. The final decision to accept or reject the applicant lies solely with the Owner.

1.2 INTERPRETATION OF "OR EQUAL" CLAUSES

- A. The Contractor shall include in its base bid the items, as specified, without consideration of using the 'or equal' items and methods.
- B. The Contractor shall then include in its bid the amount of the deduction, increase or revised total bid to be applied if the 'or equal' items and methods are accepted.
- C. The Owner and Engineer shall evaluate the 'or equal' stature of the proposed materials and methods.
- D. The Owner reserves the right to accept or reject the proposed 'or equal' materials and methods at the appropriate adjustment to bid price.

1.3 PROPOSALS WITH SPECIFIED BID ALTERNATES

- A. The Owner reserves the right to select the bid alternate desired, regardless of the amount bid.
- B. Comparison of bids for consideration of award shall be on the basis of the Total Base Bid only.
 1. If award is made to the low Bidder, the bids from the low Bidder for Alternates identified on the Bid Form shall be considered separately. If Alternate(s) are selected for inclusion in the award, the Alternate(s) shall be in addition to the Total Base Bid.
- C. Owner reserves the right to award any combination of the Base Bid plus Alternate(s) in the best interest of the Owner.

1.4 CONTRACTOR PROPOSED ALTERNATIVES

- A. Contractor proposed alternative methods and techniques may be considered by the Owner, with the advice of the Engineer, after Award of Contract. No alternatives shall be accepted or considered as part of the bid.
- B. The Contractor shall include in its base bid the items, as specified, without consideration of using any proposed alternative materials and/or methods.
- C. The Contractor shall then include in its bid the amount of the deduction, increase or revised bid amount to be applied if the proposed alternative materials and methods are accepted.
- D. The Owner and Engineer shall evaluate the stature of the proposed materials and methods.
 1. Evaluation by the Owner and Engineer shall include the cost of modifying the design, as necessary and shall be at the discretion of the Owner and Engineer.

2. If the Contractor is proposing trenchless technology that is not included as a contract alternative, the following modifications to the original design shall be anticipated by the Contractor and included in the price differential or revised contract amount, as proposed:
 - (a) The actual inside pipe diameter included in the Contractor proposed alternative shall be equal to or larger than the original conduit design, as specified, unless approved by the Engineer.
 - (b) The minimum grade of all conduits installed by trenchless technologies for gravity sewers shall be 0.80 percent. This minimum may increase the depth required for structures. The Contractor shall include in the price differential or revised contract amount the cost of any such increases in structure depth.
 - (c) Proposed modifications which include changes in pipe size whether to meet the required actual inside pipe diameter or necessitated by proposed changes in pipe materials, etc. may require changes in manhole diameters to accommodate the necessary pipe entrances. The Contractor shall include in the price differential or revised contract amount the cost of any such increases in manhole size.
- E. The Owner reserves the right to accept or reject "Contractor Proposed Alternatives".

1.5 SPECIFICATION REFERENCES

- A. If the Bidder proposes an alternative:
 1. The Bidder is required to request, in writing, a determination on the Specifications which will be enforced to govern the construction. This request shall be made directly to the Engineer at the time of bid opening or before.
 2. The Engineer shall provide a written response prior to the end of the next working day to allow the Contractor time to withdraw its bid, if requested by the Contractor.

1.6 SUBMITTALS

- A. "OR EQUAL" MATERIALS AND/OR METHODS
 1. Unless otherwise specified, contractors whose bids are based on "equal" materials and/or methods shall include with their bid the manufacturer name, address, product name, model, specification reference and/or testing certification of the items proposed to be used. The Contractor shall also include evidence of the 'equal' stature of the products proposed.
- B. PROPOSALS FOR SPECIFIED BID ALTERNATES
 1. Unless otherwise specifically requested, no submittals are required.
 2. Unless otherwise specifically requested, the Contractor is required to bid at least one of the alternates included in the proposal form, and the Contractor may choose to bid other alternates or not.
- C. CONTRACTOR PROPOSED ALTERNATIVES
 1. The Contractor shall contact the Engineer prior to bidding the job to discuss its proposed alternative approach to the methods and materials used or execution of the job. The Engineer shall evaluate the proposed methods and may at the Engineer's discretion choose to issue an addendum to all contractors or accept the conversation as privileged communication.
 2. Unless otherwise specified, the Contractors whose bid includes alternative materials and/or methods shall include with their bid the manufacturer name, address, product name, model, specification reference and/or testing certification of the items proposed to be used. The Contractor shall also include evidence of the 'equal' stature of the products and/or methods proposed.
 3. The Contractor shall mark the outside of the bid envelope that alternative methods are included.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

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

SECTION 01270 - MEASUREMENT & PAYMENT

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 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.
- B. **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.
 - 1. 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.
 - 2. Refer to Sections 02330, 02720 and 02730 for additional information regarding measurement and payment of Select Granular, Aggregate Base and Aggregate Surface.
- C. **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.
- D. **Compacted Volume Materials:** When measurement is specified by the CUBIC YARD, (CY) COMPACTED VOLUME (CV), will be determined by:
 - 1. Where loose volume tickets are provided, by application of a conversion factor from loose volume to compacted volume.
 - 2. Refer to Sections 02330, 02720 and 02730 for additional information regarding measurement and payment of Select Granular, Aggregate Base and Aggregate Surface.
 - 3. Where loose volume tickets are not provided, 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

3.1 PAYMENT PROCESS

- A. Project Payments require approval of both Owner (Lake County) and Co-Owner (City of Two Harbors) before payment will be released to the Contractor.
- B. Owner, Co-Owner, Engineer, and Contractor recognize the requirements of the payment process.
- C. Project Payments shall be made in accordance with Contractual and Statutory requirements.

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

SECTION 01310 - COORDINATION

PART 1 - GENERAL

1.1 SEQUENCE OF CONSTRUCTION/PROJECT SCHEDULE

- 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 C-520 "Agreement" of this Project Manual.
- C. The Preconstruction Conference as outlined in Section 01315 "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 the hours of 7 A.M to 7 P.M, Monday through Friday.
 - 1. Includes starting of machinery in morning for warm-up period.
- B. Saturday: Work on Saturdays will be allowed by request. The Contractor shall notify the Owner and Engineer of any work planned on Saturday at least 48 hours prior to such work.
- C. Sundays and Holidays: No work will be allowed on any Sunday or legal holiday unless written authorization granted by Owner or Engineer.
- D. 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 Specification 01555 "Maintenance and Control of Traffic" of this Project Manual.

1.4 SITE ACCESS BY OTHERS

- A. Reference Specification 01550 "Maintenance of Haul Roads and Temporary Access" of this Project Manual.

1.5 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 a minimum of two (2) days in advance of performing work on any project segment 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 and shall also conform to Specification 01550 "Maintenance of Haul Roads and Temporary Access".

1.6 COORDINATION WITH EXISTING PUBLIC SANITARY SEWER SYSTEM AND PUBLIC WATER SYSTEM

- A. Existing public sanitary sewer system and public water system is owned by the City of Two Harbors.

- B. All elements of existing public water system, including valves and hydrants, shall be operated only by City of Two Harbors personnel.
 - 1. Contractor shall coordinate all requests for operation at least 48-hours in advance.
 - 2. City of Two Harbors reserves the right to request a different schedule if proposed schedule would cause undue hardship.
- C. Water for construction:
 - 1. It shall be the responsibility of the Contractor to furnish and supply all water necessary for successful construction of the Work.
 - 2. If the contractor wishes to use water from the public water system for construction, it shall be obtained only from a hydrant located at the City of Two Harbors Utilities facility at 503 20th Avenue Two Harbors, MN.
 - (a) The Contractor must receive approval from and coordinate with Two Harbors Utilities to obtain the water from the designated hydrant.
 - (b) Acquisition of the water shall be under the direct control and supervision of the City of Two Harbors Utilities.
- D. Contractor shall coordinate with the City of Two Harbors Utilities for installation of the sanitary sewer improvements or any other work that may impact the existing sanitary sewer system.
 - 1. Contractor shall schedule any connection to the existing City sanitary sewer system with City of Two Harbors Utilities.
 - 2. Contractor shall coordinate all requests at least 48-hours in advance.
 - 3. City of Two Harbors reserves the right to request a different schedule if proposed schedule would cause undue hardship.

1.7 INTERRUPTION OF EXISTING SANITARY SEWER OR WATER SERVICE

- A. When existing sanitary sewer service and/or existing water service to one or more properties will be interrupted:
 - 1. Contractor shall schedule service interruption with Owner and Engineer.
 - (a) Contractor shall submit written request for service interruption.
 - (b) Request shall include proposed date, start time, and duration of interruption.
 - (c) Request must be submitted at least 72-hours in advance of proposed start of interruption.
 - (d) Two Harbors Utilities reserves the right to request a different schedule if proposed schedule would cause undue hardship.
 - 2. The Owner and Engineer shall prepare and deliver written notification of the service interruption to the affected properties 48-hours in advance of schedule start of interruption.
 - 3. No interruptions shall be scheduled to start earlier than 9:00 a.m.
 - 4. Planned service interruptions for any property shall not exceed 4 hours within any 72-hour period, unless authorized by Two Harbor Utilities or included as part of the approved temporary water plan submitted by Contractor.
- B. See Paragraph 3.1.A for additional coordination requirements regarding temporary water and watermain work.

1.8 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 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. Contractor shall be required to follow and comply with all applicable requirements of Gopher State One Call (GSOC).
- B. 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. Gas and electric utilities are owned and operated by the City of Two Harbors.
 - (a) Contact information:
 - (1) Gas: 218-834-8812
 - (2) Electric: 218-834-8811
 - (b) Gas and electric lines are present within the Project.
 - (1) Contractor shall coordinate with the Gas and Electric Superintendents prior to the start of work on each block of street or avenue.
 - (2) City Gas and/or Electric Utilities may elect to have personnel on site during construction to monitor activities and coordinate crossings. Contractor shall cooperate with any City Utility personnel on site during construction.
- C. All coordination with utility providers is considered incidental to the construction and no additional compensation shall be granted.

1.9 COOPERATION WITH FIRE & EMERGENCY DEPARTMENTS

- A. The Contractor shall consider the effect of their construction activities on the response of emergency equipment. The Contractor shall notify the police, fire, and other emergency departments as necessary with regard to critical dates in the construction schedule or activities that may impact the response of those departments.
- B. 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.

1.10 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. City of Two Harbors Electric:
 - (a) Existing light poles will be removed and replaced at various locations in the Project.
 - (b) New conduit crossings may be placed across work areas at various locations in the Project.
 - (c) Contractor shall coordinate with Two Harbors Electric Superintendent as necessary to allow for work to be done by the Electric Utility.
 2. City of Two Harbors Gas:
 - (a) Existing gas lines will be relocated/abandoned and replaced at various locations in the Project.

- (b) New crossings may be placed across work areas at various locations in the Project.
 - (c) Contractor shall coordinate with Two Harbors Gas Superintendent as necessary to allow for work to be done by the Gas Utility.
- B. All coordination and cooperation with other contractors in the vicinity of the Project is considered incidental to the construction and no additional compensation shall be granted.

1.11 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.
- C. All equipment materials and labor required to coordinate with service providers and maintain services shall be incidental to the Contract.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SEQUENCING OF WATERMAIN CONSTRUCTION

- A. Project improvements will require multiple shut downs on portions of the existing water system, and use of temporary water system(s) to maintain service to properties during installation of new water main.
 - 1. See Sheets G2.03 and G2.04 in the Drawings.
- B. Shut downs on the existing water system shall comply with the requirements of Paragraphs 1.5 and 1.6 of this Section.
 - 1. Location of valves to be operated and areas impacted by shut downs shown on the Drawings are for reference only. Contractor shall confirm with Two Harbors Utility prior to construction.
 - 2. Overnight shut downs are not required, but will be considered if requested by the Contractor.
 - (a) If Contractor wants to use overnight shut down of watermain, written request shall be submitted by the Contractor a minimum of 7 days in advance of the proposed work. Overnight shut down will require approval of the written request. No overnight shut down of the water system shall be performed without approval of Two Harbors Utility.
- C. Temporary Water System
 - 1. Refer to the following sections of this Project Manual:
 - (a) 01310 – Coordination. Information on sequencing/scheduling.
 - (b) 01330 – Submittals. Requirements for the Contractor temporary water plan.
 - (c) 02510 – Domestic Water System. Requirements for the temporary water system.
 - (d) Contractor shall comply with all requirements of the Project Manual.
 - 2. Contractor shall submit a written plan for temporary water system(s).
 - (a) Drawings identify one option that meets requirements.
 - (b) Contractor can utilize option shown on Drawings, or can propose different option(s) for any portion of the Project.
 - (c) Temporary water plan submitted by contractor is subject to review and approval by Engineer and Two Harbors Utilities.

3. Sequence/Scheduling

- (a) No property shall be served with temporary water unless the permanent watermain that serves that property is actively under construction.
 - (b) No property shall be served by a temporary water system more than once during the Project.
 - (c) Removal of existing watermain and installation of new watermain on any portion of the Project shall not begin until all properties impacted by that portion of Work are successfully connected to the temporary water system.
 - (d) Temporary water systems shall not be used over the winter season.
- D. If Contractor schedule proposes watermain construction in both 2021 and 2022, new watermain installed in 2021 shall be connected to existing water system to allow for looping and avoid dead-end segments between construction seasons until remaining watermain is installed in 2022.

3.2 SEQUENCING OF PROJECT PHASE SEGMENTS

A. The Contractor shall perform the Work in accordance with the Milestones stated in Section C-520 - Agreement.

- 1. Contractor shall be allowed to have either 1 or 2 individual project phase segments as defined in Section C-520 - Agreement, Paragraph 4.03.C.1 under construction simultaneously from the removal of existing surfacing until completion of Milestone 1.
 - (a) If Contractor wishes to work simultaneously on more than 2 project phase segments, they must make written request to the Owner and Engineer for consideration. The request must include specific information on which phase segments are proposed for work, and the proposed schedule for each segment. If Contractor can demonstrate sufficient personnel, management, and coordination to allow work on more than 2 phase segments simultaneously without detriment to the overall project, Owner and Engineer may allow work on additional phase segments. No work on additional phase segments shall begin without written authorization from Owner or Engineer.
 - (b) This restriction shall not apply to advance activities that do not require removal of existing surfacing, such as potholing utilities, clearing and grubbing, stripping of topsoil, and establishment or erosion control.
 - 2. In consideration for efficiency of activities such as concrete placement, bituminous paving, and turf restoration, Contractor is restricted to a maximum of 4 individual project phase segments under construction simultaneously from the completion of Milestone 1 to completion of Milestone 2/Milestone 3.
 - (a) If Contractor wishes to work simultaneously on more than 4 project phase segments, they may make written request to the Owner and Engineer for consideration. The request must include specific information on which phase segments are proposed for work, and the proposed schedule for each phase segment. If Contractor can demonstrate sufficient personnel, management, and coordination to allow work on more than 4 phase segments simultaneously without detriment to the overall project, Owner and Engineer may allow work on additional phase segments. No work on additional phase segments shall begin without written authorization from Owner or Engineer.
 - 3. In consideration for efficiency of activities such as structure adjustments, and bituminous paving, Contractor may have all construction phase segments under construction from completion of Milestone 2/Milestone 3 to substantial completion.
- B. Transitional Bituminous Patch. If Contractor's schedule proposes to extend construction into 2022, no street areas shall be left with gravel surfacing over the winter, unless that area was existing gravel surfaced prior to the Project. At the end of 2021 construction Contractor shall provide temporary bituminous patches at locations necessary to transition from work completed in 2021 to existing street surfaces. Transition patches shall meet the requirements stated on the Drawings.

1. All materials, labor, and equipment necessary for the furnishing, installation, and removal of any Transitional Bituminous Patch, including disposal of removed materials and saw cutting at removal limits, shall be considered incidental to the Project. No separate measurement or payment will be made for any work associated with a Transitional Bituminous Patch.

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

SECTION 01315 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Neighborhood Information Meeting

1. A Neighborhood Information Meeting will be held by the Owner prior to the start of work.
 - (a) Purpose of the meeting will be to inform the public of the anticipated construction activities and schedule for the project, and to answer questions.
2. Contractor will be required to have a representative in attendance at the meeting to assist in answering questions from the public regarding the construction process.

B. 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 their proposed detailed construction progress schedule. The construction schedule shall be subject to the review of the Owner, Engineer and applicable agencies.

C. 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.
 - (a) Weekly progress meeting will be required. Contractor, Engineer, and Owner shall agree upon a time for weekly meetings.

D. 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*****

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SECTION 01330 - SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

- A. The General Conditions of the Construction Contract outlines the requirements for Submittals. This section provides information on file format and routing.
- A. Additional submittals are required in the technical specifications. The responsibility for completeness of submittals lies with the Contractor.
- B. The Contractor shall submit three copies of 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. If the Contractor requires more than two reviewed copies, the Contractor shall submit additional sets.
 - 1. Each submittal shall include information outlined in Section 01330.3.1.D below on the transmittal letter.
 - 2. Submittals shall be numbered in accordance with the following system:
 - (a) Submittal # → S-001, S-002, S-003, etc.
- 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 (as defined in Section 01310) - to be reviewed at the Preconstruction Conference. See Article 4 of Section C-520 "Agreement" 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 02370 "Erosion & Sediment Control" of this Project Manual.
- C. Concrete Mix Design
- D. Bituminous Mix Design (wear and non-wear)
- E. Material 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 production.
- F. Geotextile Fabrics - Certificates of Compliance.
- G. Sanitary Sewer and Sanitary Sewer Service
 - 1. Sanitary sewer bypass pumping plan.
 - 2. Manhole structure - shop drawings.
 - 3. Manhole casting - shop drawings.
 - 4. Piping and fittings - Certificates of Compliance.
 - 5. 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. Coordinated watermain shutdown plan.
 2. Temporary water service plan.
 3. Hydrants - Certificates of Compliance.
 4. Valves & boxes - Certificates of Compliance.
 5. Pipe & fittings - Certificates of Compliance.
 6. Corporation stops, saddles, curb stops, curb boxes, copper pipe - Certificates of Compliance.
- J. Seeding - Certificates of Compliance for seed mixture & fertilizer.
- K. Compost – Certificate of Compliance
- L. Trees & Shrubs - Certificates of Compliance.

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 CONSTRUCTION PHOTOS

- A. The CONTRACTOR shall take digital photos during the course of underground construction work prior to backfilling.
- B. Photos shall be taken using a device with the Global Positioning System (GPS) setting enabled.
- C. The quality of the photos submitted shall be sufficient to clearly depict the focal points in the photo.
- D. All photos shall be submitted to the ENGINEER in a digital format immediately upon completion of the utility installation.

1.5 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.
 1. The CONTRACTOR shall fill out a service record form for each water service and sanitary sewer service connection or stub out. 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.
 2. See Section 02530 -Pipe Sewers – Sanitary for additional requirements regarding sanitary sewer services.
- 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.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SUBMITTAL ROUTING

- A. All submittals shall be approved by the Contractor prior to submission to the Engineer.
- B. Submittals shall be submitted via email or digital transfer method acceptable to the Engineer.
- C. 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
- D. A Letter of Transmittal that identifies the submitted item and the review action required shall accompany all submittals.
 - 1. The Contractor shall be responsible for filling in the following information on the Letter of Transmittal:
 - (a) Date.
 - (b) Submittal No.
 - (c) Contractor Information
 - (d) Project Title
 - (e) Project Owner
 - (f) Identify what is being sent checking the appropriate box or description list of items
 - (g) Subject of Shop Drawing or Other Submittal.
 - (h) No. Copies Submitted.
 - (i) Identify the Specification Section the attached information relates to.
 - (j) Check whether the Shop Drawings are or are not in compliance.
 - (1) If not in compliance, list the features which are not.
 - (k) Name, Signature and Contact Information of Submitter.

3.2 SAMPLES

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

3.3 PHOTOS

- A. The quality of the photos submitted shall be sufficient to clearly depict the focal points in the photo.

3.4 RESPONSIBILITY

- A. The Engineer's review of a submittal shall not relieve the Contractor from the responsibility for deviation from the drawings and specifications unless the Contractor has, in writing, called the Engineer's attention to the deviations at the time of submission; nor shall it relieve the Contractor from the responsibility of errors in the submittals.
- B. The Contractor shall allow a minimum 5-business days for Engineer review unless otherwise agreed by the Engineer.
- C. 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.
- D. 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.
- E. 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.
- F. Failure of the Contractor to make submittals may be cause to withhold payment until submittals are received.

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

SECTION 01350 - SPECIAL PROJECT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This section covers special features of this project which may require individual attention of the Contractor and/or the subcontractors. Descriptions contained herein are intended as a service and to prevent oversights by the Contractor. However, the Contractor shall remain the only party liable for the performance of all provisions included in the Contract Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

3.1 CONSTRUCTION STAGING (PHASING) PLAN

- A. The Contractor shall develop and submit a Construction Staging (Phasing) Plan, to be discussed at the Preconstruction Conference and approved by the Engineer.
 - 1. Contractual requirements for Milestones and completion are listed in Section 00520 – Agreement.
 - 2. Drawings identify one option for phasing. Contractor can utilize option shown on Drawings or can proposed a different option.
- B. The Construction Staging (Phasing) Plan shall be developed to maintain the highest degree of access possible, and to provide all residents access to their driveways at the end of the construction day unless the construction activity precludes access. In these instances, residents shall have access to within ½ block of their home
- C. Phasing will require advance planning and coordination for utilities, especially the water system.
 - 1. Water system coordination and temporary water requirements are listed in Section 01310 – Coordination and 02510 – Domestic Water System.
- D. All variations from the Construction Staging Plan shall be pre-approved by the Engineer.

3.2 PUBLIC CONVIENIENCE AND SAFETY

- A. The Contractor shall ensure that employees and Subcontractors do not display items such as, but not limited to, flags, banners, and symbols on the Project Site, that may disrupt the proper prosecution of the Work, impede public safety, or create a distraction for the traveling public.
- B. The Contractor shall provide temporary facilities where and when necessary to conveniently serve pedestrian travel over or through obstructions at public walkways and at other locations designated by the Engineer. Open excavations that contain water, or are hazardous for other reasons, shall be adequately fenced off and posted with conspicuous warning signs
- C. The Contractor shall at all times conduct operations and perform the work in a manner that will ensure the least possible obstruction to traffic. The Contractor shall provide for the safety of the general public as well as the residents living beside the highway.

3.3 SCHOOL ACCESS

- A. Minnehaha Elementary School is located within the Project limits. The Contractor shall coordinate work activities such that sidewalk and paved surfaces remain accessible until June 11th for bus service and the traveling public. With restoration of access by August 20th for returning students and public accessing the school.

- B. Contractor is responsible to maintain access to the school building at all times during the Project, including access that meets ADA (Americans with Disabilities Act) requirements.
 - 1. Building access exists on 4th Avenue, 5th Avenue, 7th Street, and 8th Street.
 - (a) Accesses from 5th Avenue and 7th Street are ADA.
 - 2. Contractor may direct users to the 7th Street access during construction.
 - (a) See Traffic Control Plan in Drawings.
 - (b) Access from 7th Street is acceptable during construction.
- C. The Contractor shall notify the following school district representative prior to the start of the Project, and shall coordinate with the school district as necessary throughout the project regarding busing and building access.

- 1. School district contacts:

Jay Belcastro
Acting Superintendent
Lake Superior School District, ISD 381
Office: 218-834-8201 x8202
jbelcastro@isd381.org

Brett Archer
Minnehaha Elementary School
Principal
Office: 218-834-8221, x8402
barcher@isd381.org

3.4 BUSINESS ACCESS

- A. Two Harbor Lumber at the west end of 4th Ave.
 - 1. Continuous access shall be maintained via either 4th Avenue or 5th Avenue.
 - 2. Access Route shall be installed and maintained while 4th Ave. is inaccessible.
 - (a) See Drawings for Access Route and Signing Requirements.
- B. North end of CSAH 30 (8th St.)
 - 1. Access shall be maintained via the alley ("Alley A") located south of the businesses.

3.5 HERITAGE DAYS

- A. Heritage Days is the annual City of Two Harbors celebration. Dates for Heritage Days in 2021 and 2022:
 - 1. July 8 – 11, 2021.
 - 2. July 7 – 10, 2022.
 - 3. The parade route for Heritage Days typically runs along 7th Street.
 - 4. Contractor shall coordinate with the City of Two Harbors as necessary to avoid any Project activities that would disrupt the Heritage Days events.

3.6 CONTRACTOR YARD STOCKPILE LOCATION:

- A. The Owner is NOT providing a specific yard location.
 - 1. Some open properties do exist adjacent to the project limits.

2. Limited amounts of materials can be stored within the existing road right of ways.
3. Only materials intended for use on this Project may be stored within the Project limits.
4. Contractor is responsible to secure stored materials and to prevent unauthorized use.
5. Owner or Engineer will not be responsible for damage or loss of stored materials, or for damage to private property caused by stored materials.

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

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SECTION 01410 - 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.

1.2 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 Health Department - Watermain Plan Review. Obtained by the City of Two Harbors
 - 2. Minnesota Department of Transportation (MnDOT) – Application for Miscellaneous Work on Trunk Highway Right-of-Way. Obtained by Lake County
 - 3. Utility installation within a County right-of-way. Obtained by the City of Two Harbors
 - 4. Work within the Wisconsin Central Ltd./CN railroad right-of-way.
 - (a) Work shall be done under existing agreement between the railroad and City of Two Harbors.
- 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. Minnesota Pollution Control Agency (MPCA) - General Storm Water Permit for Construction Activity (MN R100001).
 - 2. License for work within the City of Two Harbors.
 - 3. Construction work within the City of Two Harbors right-of-way.
- 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. Obtaining aggregate materials for the project.
 - 3. Disposal of any waste product or excess material resulting from the project.
 - 4. 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. The Contractor shall submit copies of Safety Data Sheets (SDSs) for each material on site to the Engineer.
- D. If requested by the Owner, the Contractor shall provide copies of permits and/or permissions acquired for work.

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 01420 - SPECIFICATION REFERENCE AND WORKS CONSULTED

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. "Standard Specifications" 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. THREADED ITEMS - 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 shall be furnished to the nominal size as specified with Unified Thread Standard (UTS) ENGLISH Standard threads.
- 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), "Standard Specifications for Construction 2018", 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
- The provisions of MnDOT 1603.2 are hereby replaced with the following:
- A. Sampling and testing of materials for this project will be in accordance with the State Aid for Local Transportation (SALT): Schedule of Materials Control-Local Government Agency (SMC-LGA). The SMC-LGA establishes the size of samples and the minimum rate of testing. The SMC-LGA references the MnDOT Standard Specifications of Construction 2018 and does not set contract requirements for the materials.

- B. This contract requires strict adherence to 2019 Schedule of Material Control: A copy of the Schedule of Materials Control is available at: <http://www.dot.state.mn.us/stateaid/construction.html>

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/>.

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 01425 - ABBREVIATIONS

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****

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SECTION 01450 - 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 FAILING TESTS

- 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.
 - 2. If the project includes the MnDOT Schedule of Materials Control Section, 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 for all testing listed under Quality Control, Contractor, or Producer testing in the Schedule of Materials Control regardless of what the individual sections of this specification state.
- 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 those 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.

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 01500 - 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. No exception to MnDOT referenced specification

1.3 SPECIFICATION REFERENCES

- A. MnDOT 2021 shall apply to mobilization.
- 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****

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SECTION 01550 - MAINTENANCE OF HAUL ROADS & 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. The Contractor shall review proposed haul roads and routes with the Owner and Engineer for concurrence prior to beginning work.
 1. To the maximum extent practical, State and County roads should be used as haul routes.
 2. Due to relatively narrow width, the Contractor shall not use any alley as a haul route. Unless specifically identified as "Haul Road" in the plans.
- C. Allowable Streets and project haul roads are described as follows:
 1. CSAH 30
 2. CSAH 35
 3. CSAH 20
 4. MN TH 61
- D. 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.
- E. 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 unless a specific bid item is provided in the Bid Schedule, the payment received included in project Contract items.
- F. The Contractor shall be responsible for all roadbed maintenance over backfilled trenches and roadbed subgrade during the construction period.

1.2 REFERENCED SPECIFICATION

- A. MnDOT 1513, Restrictions on Movement and Storage of Heavy Loads and Equipment.
- B. MnDOT 1515, Control of Haul Roads
- C. MnDOT 2051, Maintenance and Restoration of Haul Roads.
- D. 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.

3.2 ACCESS DURING CONSTRUCTION

- A. 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 construction activities during working hours.
 - 1. Continuous access must be provided for Two Harbors Lumber. See Section 01350 – Special Project Procedures and the Drawings.
- B. No open trenches will be allowed overnight.
- C. All driveways must be accessible from at least one direction from 7 PM – 7 AM daily unless other arrangements are made with the property owner.
- D. An exception to the driveway accessibility requirements will be made during construction of concrete curb and gutter and driveway aprons.
 - 1. Access restriction during concrete curb and driveway construction and curing shall be allowed for no more than seven days.
- E. Upon removal of the existing street surface, and until the new gravel base is placed, the Contractor shall keep equipment on Site at all times capable of maintaining the streets in an accessible condition, including weekend and holidays. Use of equipment will be as necessary, as directed by the Engineer, and incidental to the Project.
 - 1. Reclaimed bituminous and/or salvaged aggregate base material may be used if necessary, as temporary access surfacing during construction.
- F. All labor, signage, equipment, and materials used for temporary street surfacing and/or to maintain access during construction per these specifications shall be considered included in the Lump Sum bid item for Traffic Control. No separate or direct measurement or compensation will be considered or allowed for the furnishing, installation, removal, or disposal of such materials.

****END OF SECTION****

SECTION 01555 - MAINTENANCE AND CONTROL OF TRAFFIC

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.
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. Traffic Control 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 Traffic Control 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 Traffic Control shall be made.
 - 4. Removal of all items shall be included in the Lump Sum payment.
 - 5. Compliance with all access requirements stated in Section 01550 of this Project Manual shall be included in the Lump Sum payment for Traffic Control.
 - 6. Signs for School and Business Access during construction shall be paid for under the separate bid item for Sign Type Special as stated in Section 02890 – Traffic Signs.

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. Traffic control devices required along the project corridor shall be delivered and installed prior to the start of Work.
- C. The Contractor shall maintain traffic through the intersections whenever possible.
- D. The Contractor shall monitor and maintain all traffic control devices.

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

SECTION 01562 - AIR, LAND AND WATER POLLUTION

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 for the prevention of air, land and water pollution as indicated on the plans or 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. Payment for the prevention of air and land pollution shall be incidental to the project and no separate compensation will be granted
 2. Payment for all work associated with the prevention of water pollution and erosion control shall be incidental to the project and no separate compensation will be granted, unless payment for such work is specifically identified in Section 02370 "Erosion and Sediment Control" of this Project Manual.
- B. SPECIFICATION REFERENCES
1. MnDOT 1717 shall apply to the prevention of air, land, and water pollution.
 2. MnDOT 2130 shall apply for Water for Dust Control.
 3. MnDOT 2573 shall apply to storm water management.
 4. Section 02315 – Application of Water.
 5. Section 02370 – Erosion & Sediment Control.
 6. 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 GENERAL

- A. The Contractor shall provide and maintain all sanitary accommodations for use by employees.
- B. All solid waste material shall be disposed by the Contractor in accordance with the local and State solid waste disposal regulations.

3.2 DUST CONTROL

- A. The Contractor shall perform dust control operations necessary to proactively prevent the production of dust in amounts to cause nuisance or damage to property, vegetation, animals, or persons in the vicinity of the construction.
- B. The Contractor shall keep the surface of construction work areas and unpaved haul roads moist by spraying with uncontaminated water so as to prevent, not just reduce, airborne dust.
- C. The Contractor shall suspend construction or haul traffic when the Contractor cannot prevent airborne dust until such time as dust control can be re-established to the required levels.
- D. The Contractor shall be responsible for any damage resulting from dust originating from the construction. The dust abatement measures shall be continued until the Contractor is relieved of further responsibility under these Contract provisions.
- E. Requests by the Owner or Engineer for additional dust control shall be accomplished within 4 hours of notification and shall also include evenings and weekends as required or deemed necessary by the Owner

or the Engineer. **Failure to perform the work requested within the 4 hours may result in the Owner or Engineer arranging for dust control by others. A contract deduction shall be made equal to the total of all costs to perform dust control so arranged, including but not limited to labor, materials, equipment, and administrative costs.**

3.3 USE AND ONSITE STORAGE OF CHEMICALS AND HAZARDOUS MATERIALS

- A. Examples of chemicals and hazardous materials covered by this section include but are not limited to fertilizer, pesticide, chemical flocculants, oil, diesel fuel, gasoline, hydraulic fluids, paint solvents, petroleum-based products, wood preservatives, additives, curing compounds, paint, and acids.
- B. Use of chemicals and hazardous materials shall be in accordance with recommendations provided by the manufacturer or supplier.
- C. All onsite storage shall be:
 - 1. in a secured location that is protected from contact with stormwater and wind erosion, and
 - 2. in sealed containers to prevent spills, leaks, or other discharge.
- D. All disposal of chemicals and hazardous materials must be in accordance with the local and State waste disposal regulations including secondary containment as applicable.
- E. Reference Storm Water Pollution Prevention Plan (SWPPP).

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

SECTION 01720 - FIELD ENGINEERING

PART 1 - GENERAL

1.1 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 shall 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 shall be 50.0-feet. Cuts to the proposed pipeline grade will be furnished by the Engineer. Location staking shall 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, shall 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 for subgrade, aggregate base construction and prior to final paving.
 5. Concrete Pad: Staking will be furnished and set by the Engineer at each corner of proposed concrete pads as well as at critical grade points necessary in order for the Contractor to set forms and construct the pad in accordance with the Drawings. Stake set may be offset for construction.
 6. 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 shall be furnished and set by the Engineer for control of the concrete construction herein described. The offset and actual form or string line locations shall be in accordance with the paver manufacturer's recommendations and the approved paving strategy as determined at the Preconstruction conference.
 7. 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).
 8. 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.
 9. The Engineer will provide horizontal and vertical control points on the project's datum.
 10. The Engineer will provide stakes indicating the right of way and/or temporary easement construction limits.
 11. The Engineer will provide stakes indicating the project stationing.

12. 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.
 13. 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 shall be recorded as being received the next business day.
 14. 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 shall be re-staked by the Engineer and will not be at the Contractor's expense.
 15. 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 shall have been verified or corrected by the Engineer.
 16. 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.
 17. All other line and grade staking shall 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.

1.2 SPECIFICATION REFERENCE

- A. Water Distribution System - See CEAM 2600.
- B. Pipe Sewers - See CEAM 2621.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

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

SECTION 01770 - PROJECT CLOSEOUT

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, shall be examined by the Engineer and Owner; and, any workmanship or materials found not meeting the requirements of the specifications shall 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 shall 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 ****

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TECHNICAL SPECIFICATIONS

for

2021 Street Improvements

SAP 038-630-001

SAP 038-635-001

SAP 038-620-010

City Streets: 4th Ave., 5th Ave. & 6th Ave.

Lake County & City of Two Harbors
Lake County, MN

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SECTION 02111 - CONTAMINATED SOILS MITIGATION - PETROLEUM

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 mitigate / abate contaminated soils encountered during the construction, as specified herein, and/or as specified by the Engineer.
- B. Areas adjacent to this project are suspected to have been contaminated with petroleum products, solvents, etc. The alignment, specifically the utility trench for storm sewer north end of 8th St., of this project may encroach on this area which could require mitigation and/or abatement.
- C. MPCA files show an INACTIVE status Petroleum Remediation Leak Site LS0019035 is located at 732 7th Ave. (North end of CSAH 30/8th Street). Last monitoring report was on February 8, 2017 when the MPCA closed the site file.
- D. This site abuts the project and contaminated soils were not observed during soil investigations in the area. No additional information on the above referenced Leak Sites is available from the County or City of Two Harbors. Additional information may be available from the MPCA at 651-296-6300
- E. It shall be the responsibility of the Contractor to dispose of these materials in accordance with all State and Federal regulations. The Contractor shall then appropriately demolish, dispose, and/or decontaminate any contaminated soils and/or any vessels which held regulated materials.

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. Excavation of contaminated soils shall be paid under the bid item "EXCAVATION SPECIAL" at the unit price bid per CUBIC YARD (CU YD) EXCAVATED VOLUME (EV) and shall involve all costs to excavate, and stockpile if necessary, the contaminated soil.
 2. Handling the contaminated soil to the designated site shall be paid under the bid item "HAUL & DISPOSE OF CONTAMINATED MATERIAL" at the unit price bid per CUBIC YARD (CU YD) LOOSE VOLUME (LV) and shall include all costs associated with loading, hauling, and unloading of the contaminated soil. The ratio used to determine this pay quantity will be 1.3 times the quantity measured for "EXCAVATION SPECIAL".
 - (a) The Contractor will deliver the contaminated material to a facility eligible for the Petrofund Program.
 - (b) The quantity of EXCAVATION SPECIAL and HAUL & DISPOSE OF CONTAMINATED MATERIAL is strictly an estimate and may be increased or decreased by any amount with no adjustment in unit price according to the conditions revealed.
 - (c) No direct compensation will be made for on-site use of the contaminated soils if determined suitable for such use by the ENGINEER.
 3. Backfill for Special Excavations:
 - (a) No direct compensation will be made for backfilling excavated areas with suitable uncontaminated material from the excavation.
 - (b) Measurement and payment for SELECT GRANULAR EMBANKMENT shall be based upon the CUBIC YARD, COMPACTED VOLUME – CY (CV) used to backfill special excavations.
 - (c) The quantity of granular borrow used to backfill special excavations is strictly an estimate and may be increased or decreased by any amount with no adjustment in unit price according to the conditions revealed.

- 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 various underground construction items. Such items of work include but are not limited to:
 - 1. Any delays caused by encountering contaminated soils on the job site.
 - 2. Complying with State and Federal regulations, including but not limited to those associated with reimbursement by the Petrofund.
 - 3. Demolition and disposal of any associated materials to those itemized in the Bid Documents for which specific bid items are not provided.

1.3 SPECIFICATION REFERENCES

- A. The regulations of the Minnesota Department of Health, The Minnesota Pollution Control Agency and the Occupational Safety and Health Administration shall govern all mitigation and abatement efforts, except as amplified herein.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.4 SUBMITTALS

- A. If contaminated soils are encountered:
 - 1. The Contractor shall obtain a minimum of three (3) proposals for the excavation and disposal of the contaminated soils using the State of Minnesota Petrofund forms. Forms are available at <https://mn.gov/commerce/industries/fuel/petrofund/#forms>.
 - 2. All proposals must be from CONTRACTORS and DISPOSAL SITES currently registered with the Petrofund or able to obtain approval from the State of Minnesota Petrofund as an approved CONTRACTOR or DISPOSAL SITE prior to begin of activity related to this section.
- B. Required MPCA, Duty Officer, and MDH Notifications shall be submitted by the CONTRACTOR with a copy provided to the Engineer.
 - 1. Contractor is reminded that these notifications may have fixed waiting periods which could delay the construction. No cost adjustment shall be available to CONTRACTOR due to failure to submit the required notifications in a timely manner.
- C. Copies of invoices for landfill shall be submitted to the Owner with the request for payment.

1.5 PREQUALIFICATIONS

- A. CONTRACTOR shall ensure that CONTRACTOR or CONTRACTOR's SUB-CONTRACTOR doing the work described in this section is on the list of Contractors registered with the Petrofund.
- B. The DISPOSAL SITE utilized by the CONTRACTOR for disposal of petroleum contaminated soil shall be registered with the Petrofund.
- C. A list of CONTRACTORS and DISPOSAL SITES currently registered with the Petrofund is available online at:
 - 1. <https://mn.gov/commerce/industries/fuel/petrofund/>

PART 2 - PRODUCTS

2.1 MATERIALS

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

PART 3 - EXECUTION

3.1 CONTAMINATED SOILS ENCOUNTERED - NO DISTURBANCE

- A. If contaminated soils are encountered and not disturbed by the project design or the Contractor's activities, the Contractor shall notify the Owner, the Engineer, and all appropriate agencies. The Contractor may then

proceed with its work; however, no permanent construction is permitted which could limit access to the area until releases have been granted from the appropriate authorities or a mitigation plan is developed.

- B. The Contractor shall cooperate with the authorities to determine the extent of the contamination.
- C. All efforts and delays to the Contractor's work shall be considered incidental.

3.2 CONTAMINATED SOILS ENCOUNTERED - WITH DISTURBANCE OR PROPOSED DISTURBANCE

- A. Immediately notify the Owner and the Engineer.
- B. Cooperate with the Engineer's Soils Consultant to determine the extent and type of contamination present.
- C. If disturbance has already occurred, the Contractor shall:
 - 1. Immediately notify the Owner, the Engineer, and all appropriate agencies, (including the Minnesota Duty Officer for spills 800-422-0798, if appropriate).
 - 2. Isolate and secure the area.
 - 3. Make a determination of the potential risks of fire, fumes, spreading the contamination, etc.
 - 4. Notify neighboring residents if the potential is significant.
- D. The Contractor shall then, participate in the development and implementation of a mitigation plan.

3.3 PETROFUND REIMBURSEMENT

- A. OWNER will forward a request to the MPCA Public Works Coordinator issue a "Request to Take Corrective Action" letter.
- B. OWNER intends to request reimbursement for all eligible work done under this specification.
- C. **Failure on the part of the CONTRACTOR to perform the work in compliance with the Petrofund requirements which results in a direct reduction in eligible reimbursement to OWNER may result in a contract deduction equal to the amount of reduced reimbursement received by OWNER from the Petrofund.**

****END OF SECTION****

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SECTION 02210 - SUBSURFACE INVESTIGATION (POTHOLE UTILITY)

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 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 shall be paid according to the referenced specification or as modified below:
1. A Bid Item has been provided for SUBSURFACE INVESTIGATION (Pothole Utility). Measurement shall be per EACH and shall include all costs of labor, materials, equipment, coordination, and ultimate disposal or backfill required to complete the work, as specified.
 - (a) This bid item is intended for use on advance investigation, to check and verify the location of existing 2" sewer discharge line at the west end of 5th Ave. to alleviate conflicts with new proposed hydrant and watermain and verify invert connection to sanitary structure 3-14 prior to construction activities, in order to allow for planning, coordination, and adjustment of activities.
 - (b) This bid item is intended for use on advance investigation, to check and verify the location of existing water line at the east end of 6th Ave. to alleviate conflicts with new proposed hydrant and watermain connection adjacent to storm structure prior to construction activities, in order to allow for planning, coordination, and adjustment of activities.
 - (c) This bid item is intended for use on advance investigation, to check and verify the location of existing 4" water main at the west end of 6th Ave. relative to proposed connection to new watermain and proposed hydrant location prior to construction activities, in order to allow for planning, coordination, and adjustment of activities.
 - (d) This bid item may also be used for advance investigation to check potential utility conflicts at locations identified by Engineer, Contractor, or Owner during the course of construction. Scope of any such investigations would be similar to (a), (b), or (c), with measurement and payment made under this bid item in the same manner.
 - (e) This bid item shall not be used for typical protection and/or exposing of utilities during an excavation or other construction activity necessary for 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 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.
 4. 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. MnDOT 2123 shall apply.
- 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:
 - (a) As directed by the Engineer, which involves excavation to locate pipelines for location and elevation verification.
 - (b) At locations proposed by the Contractor and approved by the Engineer.
2. Complete underground utility exploration before beginning construction on any individual project segment.
 - (a) Advanced potholing shall be used to verify the location and elevation of utilities that may be in conflict with proposed improvements.
 - (b) Coordinate with the Engineer to document the location of the potholed utility and to verify that it is not in conflict with the planned construction activities.
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 shall be placed and compacted to the density specified elsewhere in these Specifications for the type of utility located.

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

SECTION 02220 - REMOVING PAVEMENT AND MISCELLANEOUS STRUCTURES

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 shall be paid according to the referenced specification or as modified below:
1. The UNIT PRICE bid for removing pavement and miscellaneous structures shall include all costs of labor, materials, equipment and ultimate disposal required to complete the work, as specified.
 2. All items designated to be salvaged shall be delivered by the Contractor to the City of Two Harbors Public Works facility and placed in stockpile location identified by the Engineer, unless noted otherwise.
 3. A Bid Item has been provided for Salvage Sign. Measurement shall be per EACH (EA), including posts. Bid Unit Price shall include the removal, transporting and delivering to location identified above.
 4. A Bid Item has been provided for Remove Hydrant. Measurement shall be per EACH (EA), regardless of size, material type or depth, and will include lead pipe from main pipe, valve, and valve box.
 5. A Bid Item has been provided for Remove Gate Valve & Box. Measurement shall be per EACH (EA), regardless of size, material type or depth.
 6. A Bid Item has been provided for Remove Manhole or Catch Basin. This item includes Storm and Sanitary structures. Measurement shall be per EACH (EA), regardless of size, material type or depth, and will include casting and adjusting rings.
 7. A Bid Item has been provided for Remove Concrete Curb. Measurement shall per LINEAL FOOT (LF), regardless of type and will include saw cutting at removal limits.
 - (a) This bid item is intended for Concrete Curb Design V and stair concrete "Cheek" adjacent to existing stairs or similar.
 8. A Bid Item has been provided for Salvage Fence. Measurement shall be per LINEAL FOOT (LF), including posts. Bid Unit Price shall include the storage and reinstallation of fence, fabric mesh, bracing, posts and accessory hardware.
 9. A Bid Item has been provided for Remove Sewer Pipe (Sanitary). Measurement shall be per LINEAL FOOT (LF), regardless of size, material type or depth, measured from center of manholes.
 - (a) This pay item is for mainline sanitary sewer only.
 - (b) Existing service line removals or abandonment are incidental to main line removal.
 10. A Bid Item has been provided for Remove Sewer Pipe (Storm). Measurement shall be per LINEAL FOOT (LF), regardless of size, material type or depth, measured from center of catch basins, or manholes, and will include length of any aprons.
 11. A Bid Item has been provided for Remove Curb & Gutter. Measurement shall per LINEAL FOOT (LF), regardless of type and will include saw cutting at removal limits.
 12. A Bid Item has been provided for Remove Water Main. Measurement shall be per LINEAL FOOT (LF), regardless of size, material type or depth, measured from center of junction fittings.

13. A Bid Item has been provided for Remove Metal Pipe Railing. Measurement shall be per LINEAL FOOT (LF) of top rail, regardless of size, material type and will include saw cutting at removal limits.
14. A Bid Item has been provided for Remove Concrete Curb & Gutter. Measurement shall per LINEAL FOOT (LF), regardless of type and will include saw cutting at removal limits.
15. A Bid Item has been provided for Remove Pavement. Measurement shall be per SQUARE YARD (SY), regardless of thickness.
 - (a) No streets shall remain as gravel over the winter season. All streets with pavement surfacing disturbed shall be substantially completed prior to close of existing construction season.
 - (b) This bid item shall be used for measurement and compensation for removing of existing road pavement, overlaying an existing concrete pavement and bituminous pavements directly overlaying aggregate base.
16. A Bid Item has been provided for Remove Bituminous Driveway Pavement. Measurement shall be per SQUARE FOOT (SF), regardless of thickness.
 - (a) This bid item is intended for bituminous pavements existing directly over aggregate base, sand, soil, or overlaying existing concrete.
17. A Bid Item has been provided for Remove Concrete Driveway Pavement. Measurement shall be per SQUARE FOOT (SF), regardless of thickness.
 - (a) Removal and disposal of any reinforcing mesh or rebar shall be included in the bid unit price.
18. A Bid Item has been provided for Remove Concrete Walk. Measurement shall be per SQUARE FOOT (SF), regardless of thickness and will include saw cutting at removal limits.
19. Remove Water Main (Cross Connect)
 - (a) A Bid Item has been provided for Remove Water Main (Cross Connect). Measurement and payment shall be LUMP SUM for the location indicated on the Drawings.
 - (1) This bid item is intended for removal of the existing 4" Watermain connection to the existing 12" Watermain located in the alley north of the west end of 4th Avenue (approx. Sta. 10+50, offset 85' Left).
 - (b) Payment under this item shall be complete for all work at this location, including excavation, saw cutting of existing pipe, removal of existing gate valve, removal of existing pipe, furnishing and installation of new caps, other fittings and/or restraints, backfilling, and all else necessary to successfully complete the work as noted on the Drawings and Specifications.
 - (1) Excavation in this area is restricted as necessary as part of this work to remain within the city property. Payment for the restrictive excavation at this location shall be included in this lump sum Remove Water Main (Cross Connect) bid item. No separate measurement or payment will be made for Trench Excavation (Restrictive) at this specific location.
 - (c) Payment under this Remove Water Main (Cross Connect) item does not include aggregate base or surfacing materials required to finish this location. Any new aggregate materials as directed by the Engineer placed at this location would be measured and paid separately under the appropriate bid items for Aggregate Base or Aggregate Surfacing.
20. Salvage and Reinstall Deck
 - (a) A Bid Item has been provided for Salvage and Reinstall Deck. Measurement and payment shall be LUMP SUM for the location indicated on the Drawings.
 - (1) This bid item is intended for salvaging the existing deck boards necessary to perform the project work, located behind the sidewalk south of Minnehaha School and reinstall in condition to match existing deck.

- (b) Payment under this item shall be complete for all work to remove, salvage, include the storage and reinstallation, and all else necessary to successfully complete the work as noted on the Drawings and Specifications.
21. A Bid Item has been provided for Sawing Pavement (Full Depth). Measurement shall be per LINEAR FOOT (LF), regardless of thickness or material.
 - (a) For existing pavement consisting of more than one material, such as concrete pavement overlain with bituminous, payment at the Bid Unit Price shall be complete compensation for sawing the full thickness of both materials. Separate measurement for each material type will not be made.
 - (b) Any saw cutting necessary for removal, other than at the project limits as directed, is incidental to the removals.
 22. A Bid Item has been provided for Abandon Water Main. Measurement shall be per LINEAL FOOT (LF) of pipe abandoned, regardless of size, material type and will include caps and fittings necessary to plug the ends.
 23. A Bid Item has been provided for Remove Concrete Steps. Measurement shall be per SQUARE FOOT (SF) of tread, regardless of thickness and will include saw cutting at removal limits. Measurement will only include area of treads. Area of riser shall not be included in the removal area.
 24. A Bid Item has been provided for Salvage & Install Metal Railing. Measurement shall be per LINEAL FOOT (LF). Bid Unit Price shall include the storage and reinstallation. See section 02775 for additional requirements.
 25. Removal of brush and shrubs will be incidental.
- 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 (Incidental). The costs shall 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. Removing, storing, relocating and reinstalling mailboxes, street/traffic signs or similar structures which must be moved and/or maintained to construct the project.
 2. Off-site disposal of excess excavated material and debris.
 3. Removal and off-site disposal of bituminous or concrete, unless designated for salvaging.
 4. Removing, salvaging and storing, or disposing of manhole and catch basin castings.
 5. Loading, hauling, stockpiling and placing as directed (i.e., leveling) designated salvage items to a location directed by the Owner.
 6. Removal and off-site disposal of sanitary sewer service pipe, water service pipe and curb stops, unless designated for salvaging.
 - (a) Curb stops shall be removed to a minimum depth of 2 feet from the finished ground elevation.
 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. MnDOT 2104 shall apply to the removal of pavement and miscellaneous structures, 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 MATERIALS

- A. No exception to the referenced specification 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 prior to 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 shall be the Contractor's responsibility to secure all required permits and pay all fees associated with the disposal of the material and to 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 shall be disposed by the Contractor.
- G. All existing watermain, sanitary sewer and storm sewer pipe being removed and replaced by new improvements shall be considered as debris and removed during the construction process.
- H. Materials that have been removed as part of the project progress shall be organized, gathered and removed from the project in a timely fashion to minimize project clutter and hazards.
- I. Where existing pipes are to be abandoned in place, the pipe shall 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 02230 - 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 shall be paid according to the referenced specification or as modified below:
1. Qualifying individual Trees for Clearing having a diameter greater than 5 inches at a point measured 48 inches above the ground surface 24 inches from the tree trunk will be measurement per TREE, for payment.
 2. Qualifying individual Stumps for Grubbing having a diameter greater than 7 inches at a point of cutoff, within 12 inches of the ground, will be measurement per TREE, for payment.
 3. No exception to the referenced specification is made for Clearing and Grubbing payment items by the ACRE (AC).
- 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 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 shall apply to clearing and removing trees, stumps and brush, 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 MATERIALS

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

PART 3 - EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

- A. In addition to MnDOT Specification 2101, comply with current rules by Department of Interior: Fish and Wildlife Service - Endangered and Threatened Wildlife and Plants, specifically regarding Northern Long-Eared Bat.
1. Tree clearing seasonal restrictions do not apply to grubbing.
 2. Prior to tree trimming to remove overhanging branches, the Contractor shall inspect the branches to be trimmed for occupied bird nests and/or hollows that may be used by birds or bats.
 - (a) If absent, tree trimming may be completed without time restrictions.

(b) If present, the Contractor shall document with photos to the best of their ability and contact the Engineer before initiating tree trimming. Tree trimming may not proceed until authorized in writing by the Engineer

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

3.2 INTERFERENCE WITH TREES NOT TO BE REMOVED

- A. The Contractor may be required to trim branches that overhang the work zone from trees not designated for clearing, 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. Prior to tree trimming to remove overhanging branches, the Contractor shall inspect the branches to be trimmed for occupied bird nests and/or hollows that may be used by birds or bats.
 - 1. If absent, tree trimming may be completed without time restrictions.
 - 2. If present, the Contractor shall document with photos to the best of their ability and contact the Engineer before initiating tree trimming. Tree trimming may not proceed until authorized in writing by the Engineer
- C. 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.
- D. No direct compensation for tree protection and interference shall be made.

****END OF SECTION****

SECTION 02240 - 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 shall be considered exempt from the requirements of Supplementary Condition 13.03.

1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. No measurement will be made for Dewatering. Payment for control of groundwater, surface water, or any other water present at the site. Payment will be at the Lump Sum Contract price bid. Payment shall be compensation in full for all costs relative thereto, including, but not limited to permit approval, permit fees, investigation, design, installation, operation, maintenance repair, replacement, piping, monitoring, temporary bulkheads, temporary sheet pile installation, temporary piping, temporary pumping, settling basins and other permanent and temporary construction features.
- 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 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 2451.3C shall apply to the dewatering of trenches, 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 MATERIALS

- A. No exception to the referenced specification 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 ground water at the project site.
- B. Water from dewatering operations shall 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 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 prior to beginning discharge. The discharge rate, location, and water quality shall be in compliance with 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****

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SECTION 02315 - APPLICATION OF WATER

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 application of water for dust control 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. No direct payment is made for water required by the Contractor for any operations or activities, dust control, excavation, grading, utility and street construction.
- B. This section does not apply to water for turf establishment. Water for turf establishment is addressed in Section 02920 – Turf Restoration.

1.3 SPECIFICATION REFERENCES

- A. MnDOT 2130 shall apply to the application of water, 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 MATERIALS

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

PART 3 - EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

- A. The Contractor shall secure their own source of water.
 - 1. Refer to Section 01310 – Coordination for information regarding availability of water from the public water system.
- B. The Contractor shall apply water as may be required to obtain proper compaction for all dust control, street construction, and embankment construction.
- C. The Contractor shall NOT apply water in quantity or rate sufficient to cause erosion.

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

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SECTION 02320 - TRENCH EXCAVATION, BEDDING AND BACKFILL

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 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 the purposes of this specification section, flexible pipe materials shall include the following:
 - 1. Polyvinyl chloride (PVC) pipe – solid wall and profile wall pipe.
 - 2. Polypropylene (PP) pipe profile wall pipe.
 - 3. High density polyethylene pipe – solid wall and profile wall pipe (HDPE).
 - 4. Corrugated steel or aluminum pipe (CMP).
 - 5. Centrifugally cast, glass-fiber-reinforced, polymer mortar (CCFRPM) pipe.
- E. Rigid Pipe Materials – For the purposes of this specification section, rigid pipe materials shall 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 shall be paid according to the referenced specification or as modified below:
 - 1. A Bid Item has been provided for TRENCH EXCAVATION (RESTRICTIVE). This bid item is intended for use at plan identified locations where existing work locations are restricted. Measurement shall be per EACH and shall include all costs of labor, materials, equipment, coordination, and ultimate disposal or backfill required to complete the work, as specified.
 - (a) At the west end of 4th Ave. (Station 10+80, 10' Lt) to not encroach onto private property during watermain construction activities.
 - (b) At the east end of 6th Ave. (Station 43+15, 15' Lt) to not disturb the adjacent storm sewer structure during watermain construction activities.
 - (c) This bid item shall not be used for typical protection and/or exposing of utilities during an excavation or other construction activity necessary for the Work.

2. Items specifically identified in the Schedule of Unit Prices will be compensated in accordance with the description of measurement and payment contained in the section applicable to the individual item. Otherwise, no direct compensation shall be granted for compliance with the provisions contained herein.
 - (a) No direct compensation shall be made for pipe bedding.
 - (b) No measurement or direct compensation will be made for Dewatering.
 - (1) Groundwater is not anticipated in the pipe excavation.
 - (2) Control of groundwater, surface water, or any other water present at the site is incidental to the project.
 - (3) Water shall not be discharged or directed to locations where it will pond or cause damage to private property.
 - (4) Existing and/or proposed sanitary sewers shall not be used for the control of ground or surface water.
- 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 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 necessary for construction.
 4. Foundation materials placed in lieu 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 in lieu 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 the 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 the course of 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 storm water flows around the construction zone, include in the price bid for the associated items being installed.

17. The use of special construction techniques such as trench boxes, sheeting, shoring, etc., include in the price bid for the associated items being installed.
18. Compaction testing and compaction, if required, include in the price bid for the associated items being installed.

1.4 SPECIFICATION REFERENCES

- A. Reference CEAM 2600 shall apply to excavating, installing bedding and backfilling all trench excavation construction necessary for the completion of work, except as modified herein.
- B. All references to MnDOT specifications shall mean the specific edition, including Supplemental Specifications and Technical Memoranda as identified in Section 01420 "Specification Reference" of this Project Manual.
- C. CEAM 2600 Removal of Surface Improvements - All rubble and debris to be disposed of off-site, shall be disposed of at a location secured by the Contractor and in a manner in compliance with applicable Local, State and Federal regulations.
- D. CEAM 2600 Excavation Limits and Requirements - OSHA limitations shall also apply to the top of trench width determination. The 7-day written notice is waived if changing soil conditions and OSHA compliance apply.
 1. CEAM 2600 Trenchless Pipe Installation is hereby deleted. If trenchless pipe installation is included in this project, refer to applicable specification sections in these specifications
 2. CEAM 2600 Method of Measurement Paragraphs B and C are hereby deleted. See applicable sections of these Specifications.
 3. CEAM 2600 Basis of Payment – The last three paragraphs of 2600.5 are hereby deleted. See applicable sections of these Specifications.
- E. MnDOT 2451 shall apply to granular materials for foundation, bedding and encasement of utility line construction, except as modified herein.
- F. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.5 SUBMITTALS

- A. No exception to the referenced specification is made.
 1. Quality Control test results

PART 2 - PRODUCTS

2.1 GRANULAR MATERIALS

- A. Granular Bedding and Granular Encasement: Conform to MnDOT Spec 3149.2.F, City details BED-2 & BED-1 call out 3149.2.B.1 and 3149.2.B.1 MOD for pipe bedding.
- 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. shall 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 shall be undercut 6.0-inches below the pipe outside diameter to permit the installation of granular bedding or foundation material.
2. The trench for all rigid pipe shall be undercut three-inches minimum below the pipe outside diameter, 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 his own 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 lieu of performing dewatering is permitted.
6. All excess excavated material shall become the property of the Contractor and shall 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 shall 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 prior to 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 storm sewer pipe connection at Skunk Creek Tunnel Box Culvert shall be cut off flush with inside of the structure.
 2. The pipe end(s) shall 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 shall be water tight.
 2. For storm sewers and subdrains, all joints shall not permit the intrusion of soil or backfill materials.
 - (a) If reinforced concrete pipe is used, the Contractor may at its own discretion choose to wrap each joint with a geotextile filter fabric, as specified, rather than place mastic or gaskets 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 shall be placed at the beginning of the project or at 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 shall construct a water-tight plug on the open end of the abandoned pipe.

3. Permanent watertight plugs shall be constructed with concrete grout with a thickness of not less than one (1) pipe diameter.

3.3 BEDDING AND BACKFILLING OPERATIONS

- A. Backfill material around all manholes, catch basins, valve boxes, curb boxes, and hydrants shall be compacted with hand machines. The maximum lift thickness shall be 6-inches.
- B. Flexible Pipe Materials
 1. The Contractor shall bed and backfill the pipe as shown on the plan details. Unless otherwise shown on the plans, the pipe shall 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.
 2. Where the trench foundation has been found to be unstable and not suitable for bedding, the trench shall 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 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-inches from the bottom of the subgrade in which case granular material compacted to 100 percent Standard Proctor Density shall be used as trench backfill the full width of the trench to the bottom of the subgrade excavation zone.
- C. Rigid Pipe Materials
 1. The pipe shall be bedded and backfilled in accordance with Standard Detail Plate BED-2 Installation Type 1 as provided in the Plan Drawings.
 2. Where the trench foundation has been found to be unstable and not suitable for bedding, the trench shall 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 shall 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 shall be backfilled with granular backfill material and shall be compacted with a hand operated motorized compactor
- E. All trench backfill shall be compacted in accordance with the Quality Compaction 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 shall arrange for having the following testing performed:

1. Compaction test per SALT Schedule of Materials Control.
2. With a minimum of One gradation test per each 500 tons or 275 cubic yards (CV) of granular materials.

3.5 FIELD QUALITY CONTROL

A. The Owner shall arrange for having the following testing performed:

1. Compaction test per SALT Schedule of Materials Control.
2. With a minimum of One compaction test (including Standard Proctor) on subgrade per each 300 lineal feet of trench per 2.0 foot of depth.

B. Trench compaction testing will be scheduled by the Owner or Engineer.

C. The Contractor shall cooperate fully with the individuals performing the tests.

D. Samples for testing shall be taken from material in place, in the trench at locations approved by the Engineer. All sampling methods shall be approved by the Engineer.

E. 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.

F. Payment for trench compaction testing shall be made by the Owner.

1. Contractor shall be responsible for the cost of retesting for any failure areas.

G. No other exception to the referenced Specification is made.

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

SECTION 02330 - EXCAVATION AND EMBANKMENT

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 shall be paid according to the referenced specification or as modified below:
1. Common Excavation:
 - (a) A Bid Item has been provided for Excavation - Common. Payment at the Bid Unit Price shall be considered compensation in full for all costs of excavating, loading, transporting, and disposal of material. Measurement and payment shall be CUBIC YARD, PLAN QUANTITY (CY) (P) as described in Section 01270 and the specific following information:
 - (1) Excavation for construction to the limits and depths specified or shown on the Drawings under concrete curb and gutter, concrete sidewalk and concrete driveways is included with the Common Excavation - plan quantity.
 - (2) If the excavation is increased from the construction limits shown on the Drawings, in area and/or depth, as directed by Engineer, the additional excavation will be paid under Excavation Common.
 - (3) If the excavation is reduced from the construction limits shown on the Drawings, in area and/or depth, as directed by Engineer, no deduction to the Plan Quantity (P) will be made. The Plan Quantity (P) will still be paid in full.
 - (4) Protect and retain onsite native topsoil to the greatest extent possible.
 1. No direct compensation will be made for salvaging, stockpiling and replacing topsoil salvaged from within the construction limits.
 - (b) Unless specifically identified as a separate bid item, reclaiming existing bituminous material, mixing with underlying granular material, loading and temporarily stockpiling the mixture is considered incidental to the Excavation Common.
 - (c) Excavation Common is computed to the face of any retaining walls. Excavation required for construction of the wall shall be incidental to the unit price bid for retaining wall.
 2. Excavation Subgrade:
 - (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 shall be considered Excavation Subgrade.
 - (b) Measurement and payment for Excavation Subgrade will be by the CUBIC YARD, EXCAVATED VOLUME - CY (EV) based on the dimensions of the excavated area.
 - (c) The quantities for Excavation Subgrade 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) Payment for select granular embankment, stabilizing aggregate, reclaimed bituminous/aggregate, or aggregate base used to backfill subgrade excavations will be based on the unit of measure and the unit price bid for the respective items.
 - (c) The quantities for materials used to backfill subgrade excavations are strictly estimates and may be increased or decreased by any amount with no adjustment in unit price according to the conditions revealed.
4. Select Granular Embankment
- (a) Bid Items have been provided for:
 - (1) Select Granular Embankment
 - (b) Measurement and payment of Select Granular Embankment shall be based on the Cubic Yards (CY) Compacted Volume (CV) of material actually placed. Measurement and payment shall be as described in Section 01270 and the specific following information:
 - (1) Tickets must be provided for the material. Weight tickets are preferred. Tickets must be prepared by the supplier of the material. Measurement of material by the 'truck count' method will not be allowed.
 - (2) If weight tickets cannot be provided, volume tickets will be acceptable. Volume tickets shall be considered Loose Volume (LV). Loose Volume from the volume tickets shall be converted to Compacted Volume (CV) for payment under the pay item. Conversion shall be made based on the Loose to Compacted Volume conversion factor as determined by the Engineer.
5. Rock Excavation:
- (a) Measurement and payment for Rock Excavation shall be by the CUBIC YARD. See plan details for limits.
 - (b) The amount bid shall be compensation in full for all costs of excavating, removing and disposing, if necessary, all rock materials encountered in the course of trench excavation.
 - (c) In addition, the cost shall include granular backfill material to replace the rock material excavated. However, existing rock material under 4" in diameter may be used for backfill.
- 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 work. The costs shall be included in the unit price bid for the associated excavation items. Such items of work include but are not limited to:
- 1. Reclaiming existing bituminous material, mixing with underlying granular material, loading and temporarily stockpiling the 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 shall 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 prior to 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 inches, include in the contract unit price for common borrow.
13. Shaping, stockpiling, & seeding of all disposal sites shall 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. MnDOT 2106 shall apply to excavation and embankment, except as modified herein.
- B. MnDOT 2574 shall apply to excavation and embankment, except as modified herein.
- C. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.4 SUBMITTALS

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

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All excess excavated material not utilized on this project shall become the property of the Contractor and shall be removed from the site and disposed of at a site secured by the Contractor.
- B. Frozen material shall be considered unsuitable material unless otherwise authorized in writing by the Engineer.
- C. Excavated material unsuitable for embankment and backfill construction shall become the property of the Contractor and shall 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 material generally produced and referred to as "1½-inch dust free aggregate" or other coarse aggregate found to be in general compliance by the Engineer. Aggregate Base, Class 5 may also be used at the direction of the Engineer.
- E. Select Granular Embankment: Conforming to MnDOT Spec. 3149.2.B, Table 3149-1.
 1. Acceptable Alternate Materials:
 - (a) Select Granular Material Modified 10%: conforming to MnDOT Spec. 3149.2B, Table 3149-1.
 - (b) Select Granular Material Modified 7%: conforming to MnDOT Spec. 3149.2B, Table 3149-1, except percent passing ratio No. 200/1-in = 0% - 7%.
 2. Maximum particle size is 3 inches.
- F. MnDOT 3129 Granular Material is hereby modified as follows:
 1. Replace table 3149-3 with the following:

Table 3149-3 Structural Backfill Requirements	
% Passing ¾ in sieve	100%
% Passing Ratio #40/#10	0 - 65%
% Passing #200 Sieve	0 - 5.0%
Maximum Clay % as determined by MnDOT Test Method 1302	1.5%

- G. Aggregate Base, Class 5 – refer to Section 02720
- H. Plant-Mixed Bituminous Surfacing – refer to Section 02740
- I. Concrete – refer to Section 02770

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 except in those areas designated to be protected from compaction.
- B. Excavation below the design section of streets, avenues, or alleys shall be performed, as directed by the Engineer, for the removal of any unstable soils that may be encountered. Such excavation shall be backfilled with suitable excess common excavation material or select granular borrow 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 shall be at the Contractor’s expense.
- C. Once the subgrade has been successfully test rolled, no traffic or construction equipment shall be permitted to operate directly on the subgrade without the prior approval of the Engineer. The subgrade shall be relatively smooth prior to the placement of aggregate base. All equipment shall 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 shall be segregated and stockpiled at a site selected by the Contractor. Following curb construction, the material shall be placed behind the curb to the subgrade level of the topsoil.
- E. The Contractor shall salvage and stockpile all topsoil removed during the course of the construction. This topsoil shall be used where required for turf establishment as directed by the Engineer.
- F. Sufficient excavated material shall be utilized by the Contractor to replace loss volume due to soil shrinkage from trench excavation that may occur through the course of construction. The Contractor shall make his own determination of the amount of shrinkage that will occur.
- G. All embankments shall be compacted using 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 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.
- H. If the subgrade is unstable and the instability is due to excessive moisture, the subgrade shall be scarified and dried over a reasonable time period. When the material has reached acceptable moisture limits, the material shall be returned and compacted into place to the proper elevation. If the material continues to be unstable, the Engineer may authorize the removal of the undesirable material as subgrade excavation.

3.2 SOURCE QUALITY CONTROL

- A. The Owner shall arrange for having the following testing performed:
 - 1. Gradation tests of select granular embankment in accordance with the SALT Schedule of Materials Control.
 - 2. Gradation tests of stabilizing aggregate in accordance with the SALT Schedule of Materials Control.
- 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.

3.3 FIELD QUALITY CONTROL

- A. "Blue Top" stakes shall be provided by the Contractor at 100.0-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 Owner shall arrange for and pay all costs associated with having the following testing performed:
 - 1. Compaction testing (including Standard Proctor) on subgrade in accordance with the MnDOT Schedule of Materials Control.
- C. All testing shall be performed by an independent testing laboratory approved by the Engineer.
- D. Samples for testing shall be taken from material in place, in the roadway at locations approved by the Engineer. All sampling methods shall conform to MnDOT Standards.
- E. The Contractor shall cooperate fully with the individuals performing the tests.
- F. Should any of the specified tests fail, the Contractor shall arrange and pay for additional tests as may be necessary to satisfy the specified requirements.

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

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SECTION 02335 - 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 shall be paid according to the referenced specification or as modified below:
 - 1. No direct payment shall be made for subgrade preparation. Costs shall 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 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 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 shall apply to the subgrade preparation, 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 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 prior to 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 shall be scarified and dried over a reasonable time period. When the material has reached acceptable moisture limits, the material shall 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 shall be permitted to operate directly on the subgrade without the prior approval of the Engineer. All equipment shall be restricted to operating only in areas where the aggregate base has been installed to its full design depth. In the event that inclement weather occurs after a test roll, and prior to placement of the aggregate base or first course of bituminous, the test roll shall be voided and a new test roll shall be performed.
- E. The subgrade shall 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-feet.
 - (b) 95 percent Standard Proctor from the bottom of excavation up to 3-feet below the subgrade elevation.
 - 2. Under areas with no proposed paved or structural improvements:
 - (a) 95 percent Standard Proctor.

3.2 FIELD QUALITY CONTROL

- A. "Blue Top" stakes shall 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 shall be test rolled using a fully loaded aggregate truck (tandem) in a pattern approved by the Engineer. The subgrade stability 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.
- C. The Owner shall arrange for and pay all costs associated with having the following testing performed:
 - 1. Compaction test (including Standard Proctor) in accordance with the MnDOT Schedule of Materials Control.
- D. All testing shall be performed by an independent testing laboratory approved by the Engineer.
- E. The Contractor shall cooperate fully with the individuals performing the tests.
- F. Samples for testing shall be taken from material in place, in the roadway at locations approved by the Engineer. All sampling methods shall be in accordance with the MnDOT Schedule of Materials Control.
- G. 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 02340 - GEOTEXTILE FABRIC - ROAD CONSTRUCTION

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 geotextile fabric - road 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. Geotextile Fabric – Road Construction shall be measured by the SQUARE YARD (SY) in place. Payment at the contract price shall be compensation in full for all costs of furnishing and installing.
- 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 geotextile fabric - road construction items. Such items of work include but are not limited to:
 - 1. No exception to the referenced specification is made.

1.3 SPECIFICATION REFERENCES

- A. Reference MnDOT 3733 shall apply to the geotextile fabric - road construction, except as modified herein.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.4 SUBMITTALS

- A. Product Data: Material description and installation instructions for each manufactured product specified.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. The fabric to meet the requirements of MnDOT 3733, Type 5 (Type V), unless otherwise shown on the plans.
 - 1. Geotextile adhesive for the seams:
 - (a) 3M™ Scotch-Weld™ Holdfast Cylinder Adhesive 70 which is currently approved by MnDOT.
 - (b) Shall be a type listed on the MnDOT Approved/Qualified Products list for adhesive seams. The list is available on the MnDOT website at: <http://www.dot.state.mn.us/products/index.html>.

2.2 SOURCE QUALITY CONTROL

- A. The Contractor shall furnish certified copies of manufacturer's test results on geotextile samples indicating conformance to the required specifications. The test results shall be furnished to the Engineer at least 10-days prior to the intended installation date.
- B. Non-conforming products will be subject to rejection.
- C. Approved materials will be accepted on the basis of brand name labeled on the geotextile itself or its container.
- D. Testing in accordance with the SALT Schedule of Materials.

PART 3 - EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

- A. Prior to installing geotextile fabric, the prepared subgrade surface shall be relatively smooth and free of stones, sticks or other debris or irregularities that could puncture the geotextile.
- B. If multiple pieces of geotextile are required, adjacent strips shall:
 - 1. Have the seams glued with adhesive or shall be field or factory sewn per the manufacture's recommendation.
- C. Wrinkles and folds in the geotextile shall be removed by stretching and staking, as required.
- D. The geotextile shall be secured to prevent displacement during subsequent operations.
- E. No traffic or construction equipment will be permitted to operate directly on the geotextile.
- F. Once the geotextile is placed and prior to the placing of aggregate cover, the Contractor shall allow the Engineer sufficient time to conduct a personal observation of the geotextile to determine that no holes, rips, tears or similar defects have occurred and that sewing/overlap have been properly installed. All defects determined during the observation shall be patched or replaced prior to placing aggregate cover.
- G. The aggregate cover shall be end dumped onto the geotextile. The initial deposit of material may be graded to the design thickness but at no time shall equipment be allowed on the geotextile with less than 8.0-inches of aggregate cover. Following compaction of the initial layer, all remaining material shall be placed as specified.
- H. Construction shall be conducted parallel to road alignment. Vehicular turning shall not be allowed on the first lift of cover material, unless approved by the Engineer. All ruts that form during the construction shall be immediately filled to maintain the minimum aggregate cover.
- I. Unless otherwise shown on the plans, the geotextile fabric shall be placed to the back of the curb or to the inside edge of the edge drain filter trench, whichever is closest to the centerline of the roadway.

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

SECTION 02370 - EROSION & 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 storm water 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 Storm Water Permit for Construction Activity (MN R100001)
 1. The **Owner** has developed a **Storm Water Pollution Prevention Plan (SWPPP)** in accordance with Part III (Storm Water 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 Contractor will 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. For storm water discharges from construction activities where the Owner or Operator (Contractor) changes, the new Owner or Operator can implement the original SWPPP created for the project, implement an amended version of the original SWPPP, or develop and implement their own SWPPP.
 5. **Permittee(s)** shall 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**.
 6. 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 Storm Water Permit. An Inspector’s Log form is attached at the end of this Section.
 7. The Contractor shall be responsible for keeping the on-site SWPPP documents current and updated to reflect changing conditions as construction progresses.
 8. 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 shall not absolve the responsibilities of the Contractor in any way.
 - (2) During the review and modification period, on-site Erosion Control shall 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) 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 on-line Stormwater Permit Application. Required information includes; Name, Title, Business Mailing Address, Phone Number and Email for the designated individual.
- (d) Within 7 days of acknowledgement of the Notice of Award by the Contractor, the Owner/Contractor shall submit the On-line Stormwater Permit Application to the MPCA.
- (e) No earth disturbing work shall begin until the permit coverage date shown on the Coverage Card issued by the MPCA.
- (f) Work shall 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 shall be paid according to the referenced specification or as modified below:
 - 1. Payment for all work associated with Erosion and Sediment Control shall be at the contract unit price bid for that item and shall be considered full compensation for furnishing, installing, maintaining and utilizing storm water 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 shall be made upon installation. The remaining 20% shall be made upon complete removal of the control measure, removal of any accumulated sediment and surface restoration.
 - (a) As directed by the Engineer bid items have been included in the Bid Form for Street Sweeper (With Pickup Broom) and Skid Loader both include Operator. Measurement shall be by the HOUR (HR) of equipment use, as directed by Engineer or Owner, based on the actual amount of time spent cleaning street surfaces. However, if the Contractor is careless in their construction operations, they will be required to clean and sweep streets at their own expense. Payment at the Bid Unit Price shall be considered complete compensation for all work associated with the cleaning, including disposal of collected materials. Contractor shall anticipate multiple mobilizations to perform this work.
 - (b) A Bid Item has been provided for Stabilized Construction Exit. Payment shall be measured by the LUMP SUM (LS), and shall include all costs for furnishing, installing, maintaining, and removing the materials.
 - (1) Quantity for Stabilized Construction Exit may be increased or decreased by any amount with no adjustment in measurement or Unit Price.
 - (c) A Bid Item has been provided for Storm Drain Inlet Protection. Payment shall be at the contract price per EACH (EA), per type, according to the standard detail for furnishing, installing, maintaining, and removing the materials as detailed in the plans.
 - (d) A Bid Item has been provided for Silt Fence, Type MS. Payment shall be at the contract price per LINEAL FOOT (LF), per type, and shall include all costs for furnishing, installing, maintaining, and removing the materials as detailed in the plans.
 - (e) A Bid Item has been provided for Sediment Control Log Type Rock. Payment shall be at the contract price per LINEAL FOOT (LF), per type, according to the standard detail for furnishing, installing, maintaining, and removing the materials as detailed in the plans.
 - (f) Bid Items have been included in the Bid Form for Erosion & Turf Supervisor. Measurement shall be by the LUMP SUM (LS). Payment at the Bid Unit Price shall be considered complete compensation

for all work associated with the site monitoring, reporting, and maintaining site stabilization activities Contractor shall anticipate multiple mobilizations and monitoring reports to perform this work until turf establishment is accepted by Owner.

- (g) A Bid Item has been provided for Sediment Control Log Bioroll. Payment shall be at the contract price per LINEAL FOOT (LF), per type, and shall include all costs for furnishing, installing, maintaining, and removing the materials as detailed in the plans.
 - (h) A Bid Item has been provided for Erosion Control Blankets Category 3N. Payment shall be at the contract price per SQUARE YARD (SY), and shall include all costs for furnishing, installing, and maintaining, the materials.
 - (i) A Bid Item has been provided for Rapids Stabilization Method 3. Payment shall be at the contract price per 1,000 GALLONS (MGAL), and shall include all costs for furnishing, installing, and maintaining, the materials.
 - (j) Payment for Water for Dust Control shall be made per Section 02315 – Application of Water.
 - (k) As directed by the Engineer bid items have been included in the Bid Form for Motor Grader (Haul Road) which includes Operator. Measurement shall be by the HOUR (HR) of equipment use, as directed by Engineer or Owner, based on the actual amount of time spent maintaining Haul Road surface. However, if the Contractor is careless in their construction operations, they will be required to maintain this at their own expense. Payment at the Bid Unit Price shall be considered complete compensation for all work associated with the maintaining the haul roads, including disposal of collected materials. Contractor shall anticipate multiple mobilizations to perform this work.
- 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 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 Storm Water 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 duration of 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 shall be made for Erosion Control BMPs necessary to accommodate Contractor phasing of the project.

1.3 SPECIFICATION REFERENCES

- A. MnDOT 1717 – Air, Land and Water Pollution
- B. MnDOT 2573 – Stormwater Management
- C. MnDOT 2574 – Soil Preparation
- D. MnDOT 2575 – Establishing Vegetation and Controlling Erosion
- E. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.4 SUBMITTALS

- A. SWPPP Plan Amendments
- B. Contact information and training documentation for Construction SWPPP Manager and BMP Installer,
- C. Weekly Erosion and Sediment Control Schedule meeting the requirements of MnDOT 1717.
- D. Erosion and Turf Establishment monitoring reports meeting the requirements of:
 - 1. Weekly site visit documentation of events and activities on the project by the Contractor
 - 2. Turf growth progress of turf areas
 - 3. Identification of areas with deficiencies
 - 4. Proposed corrective measures taken to address deficiencies
- E. Site Management Plans meeting the minimum requirements of MnDOT 1717. An updated Site Management Plan shall 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 shall 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.

2.2 STORM DRAIN INLET PROTECTION

- A. Conform to the details on the Drawings. Approved Catch Basin Inserts:
 - 1. Road Drain by Wimco, LLC (www.roaddrain.com)
 - 2. Lange Inc Industries (www.langeindustries.com)
 - 3. Flexstorm Inlet Filters (www.inletfilters.com)

- 2.3 SEDIMENT CONTROL LOGS
 - A. As shown on the plans
- 2.4 STABILIZED CONSTRUCTION EXIT
 - A. As shown on the plans
- 2.5 SILT FENCE
 - A. Replace MnDOT Table 3886-1 with the following:

Table 3886-1 Silt Fence Requirements							
Silt Fence Type	Width, <i>In Min.</i>	Grab Tensile (machine direction), <i>lb</i> *	Apparent Opening Size \parallel	Puncture Strength \dagger	UV Stability, 500 h, % ‡	Min. Permittivity #	Flow Rates, <i>gpm/sq. ft</i> Max.
MS, HI woven geotextile §	36	130	No. 30 sieve	—	70	$1.0 s^{-1}$	130
PA woven geotextile	36	100	No. 30 sieve	—	70	$0.1 s^{-1}$	5
SD woven or non-woven geotextile **	variable	100		—	70	—	—
TB polyester or polyvinyl Fabric	60	200	—	90 lb	70	0	0

Values in table are Minimum Average Roll Values (MARV)
 * ASTM D 4632
 ** ASTM D 4751 Maximum average roll value.
 † ASTM D 4833
 ‡ ASTM D 4355 # ASTM D 4491
 § Provide MS, HI woven geotextile with monofilament in both directions. Do not make substitutions.
 ** Meeting Specification 3733, Types 3,4,5,7. The Contractor may use poly/poly-reinforced sheeting meeting Specification 3888 of variable width.

PART 3 - EXECUTION

- 3.1 GENERAL
 - A. Construction and/or installation of all appropriate erosion & sediment control devices shall be completed prior to any soil disturbing activities.
 - B. Prior to construction, the Contractor shall observe and document the existing storm water outfall system and discharge area. Sediment deposits not documented prior to 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. Prior to 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.
 - D. Exit areas or roads shall be kept clean of excess soil by routine sweeping. Operation may include application of water to effectively remove fine materials from pavement as directed by Engineer. The appropriate amount of water shall be applied to eliminate dust as part of the sweeping operations.

3.2 CONSTRUCTION REQUIREMENTS

- A. The Contractor shall control drainage, erosion, and sediment on the project including: haul roads, temporary construction, waste disposal sites, plant and storage locations, and borrow pits, other than commercially operated sources.
- B. The Contractor shall provide one or more trained Construction SWPPP Manager(s). The Construction SWPPP Manager shall be a 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 performance of these duties by others.
- C. If 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 written notification may result in the Owner or Engineer arranging for completion of the work by others.
- D. 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 in a timely manner, 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 completion of the work by others.
- E. **A contract deduction shall be made equal to the total of all costs incurred by the Owner due to 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. 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 Storm Water Permit for Construction Activity (MN R100001) training requirements.
 - 1. Contractor's Construction SWPPP Manager.
 - (a) Individual(s) overseeing implementation of, revising, and amending the SWPPP and performing inspections.
 - (b) Individual(s) performing or supervising the installation, maintenance and repair of BMPs.
 - (c) Duties described in (a) and (b) above may be fulfilled by separate individual(s) rather than both by the Contractor's Construction SWPPP Manager in which case both individual(s) shall have training commensurate with the job duties and responsibilities fulfilled by each and such training shall be documented in the field copy of the SWPPP.
- B. Documentation incorporated by the Contractor into the SWPPP must include either:
 - 1. Proof of a 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 shall 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****

STORM WATER POLLUTION PREVENTION PLAN - INSPECTION LOG

Project Title: 2021 Street & Utility Improvements, SAP 038-630-001, SAP 038-635-001, SAP 038-620-010,

Owner: Lake County, 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 inspection.

Name of Inspector	Type of Inspection		Date and Time of Inspection				Weather		Areas to be Inspected			
	Routine Weekly	24 Hr after 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 02510 - DOMESTIC WATER 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 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 shall be paid according to the referenced specification or as modified below:
1. Temporary Water Service
 - (a) Payment for Temporary Water Service shall be measured per LUMP SUM (LS). Payment shall include all costs to provide temporary water service to the properties who will lose service as the water main is being replaced.
 - (b) Includes traffic control and erosion control devices required by state and local regulations.
 - (c) Disinfection and header pipe ramping and trenching shall be considered incidental.
 2. Connect to Existing Water Main
 - (a) Connection to Existing Water Main shall be measured and paid by EACH (EA) connection made, complete and in place, regardless of size, at the appropriate unit price bid. Payment shall include locating the existing water main, removal of existing plug, saw cutting pipe, pipe removal, pumping, cleaning, fittings, and all else necessary to complete the connection.
 3. Connect to Existing Water Service
 - (a) Payment for Connect to Existing Water Service shall be measured by EACH (EA) connection made, and payment shall include locating the existing water service, cutting pipe, pipe removal, pumping, cleaning, fittings, and all else necessary to complete the connection.
 4. Watermain
 - (a) Watermain shall be measured and paid by LINEAL FOOT (LF) of the type and size furnished and installed as specified on the plans and in the Schedule of Unit Prices as measured along the axis of the pipe with no regard to depth or intervening fittings. Payment at the Bid Unit Price shall be compensation in full for all Work and costs, including excavation, pipe, bedding, backfill, and trench compaction.
 5. Gate Valve & Box
 - (a) Gate Valve & Box shall be measured and paid by EACH (EA) unit installed complete, at the appropriate unit price for each size and type as specified on the plans and in the Schedule of Unit Prices. The amount bid shall be compensation for all Work and costs including equipment, labor, materials, excavation, bedding, backfill, and trench compaction to complete the installation of the Gate Valve & Box.
 - (1) Includes valve adaptor
 6. Hydrant
 - (a) Hydrant shall be measured and paid by EACH (EA) Hydrant installed complete, at the appropriate unit price bid. The amount bid shall be compensation in full for all Work and costs including

equipment, labor, materials, excavation, bedding, backfill, and trench compaction to complete the installation of the hydrant.

(1) Includes fiberglass hydrant flag

7. Ductile Iron Fittings

(a) Unless otherwise noted on the plans, watermain fittings will be measured by the POUND (LB) without joint accessories. The standard weight of watermain fittings, for payment purposes, shall 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 ¹ 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

¹Weights are based on the use of long sleeves.

Tees, Crosses & Reducers									
		Fitting Weights, lbs. (AWWA C153)					Fitting Weights, lbs. (AWWA C153)		
Run	Branch	Tee	Cross	Reducers	Run	Branch	Tee	Cross	Reducers
Large	Small	MJ x MJ	MJ x MJ	MJ x MJ	Large	Small	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	-	-

Tees, Crosses & Reducers									
		Fitting Weights, lbs. (AWWA C153)					Fitting Weights, lbs. (AWWA C153)		
Run	Branch	Tee	Cross	Reducers	Run	Branch	Tee	Cross	Reducers
Large	Small	MJ x MJ	MJ x MJ	MJ x MJ	Large	Small	MJ x MJ	MJ x MJ	MJ x MJ
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

(b) The weight for fittings not listed in the tables above shall be in accordance with AWWA C153. The weight for fittings not listed in the tables above or in AWWA C153 shall be the actual weight of the fitting(s) furnished and installed based on acceptable documentation provided by the Contractor.

8. Watermain Offset

(a) A Bid Item has been provided for Watermain Offset. Measurement and payment shall be EACH for the location indicated on the Drawings.

(1) This bid item is intended for work associated with installation of the new 6-inch watermain to the existing 12-inch watermain in the Watermain Offset Work Area along the slope at the west end of 6th Avenue and adjacent to Skunk Creek, as described herein.

(b) Payment under this Watermain Offset item shall include furnishing and installation of fittings, restraints, and thrust blocking within the Watermain Offset Work Area indicated on the Drawings. It shall also include excavation beyond standard depth, coordination and/or preparation, and any other additional labor necessary for the work in the Watermain Offset Work Area.

(1) Any additional work necessary beyond the standard scope to complete the connection to the existing 12-inch watermain shall also be included in the Watermain Offset bid item. This may include, but not be limited to, dewatering if needed, or creek protection measures.

(c) Payment under the Watermain Offset item does not include:

(1) Removal of existing watermain pipe or gate valves. Those items within or adjacent to the Watermain Offset Work Area shall be measured and paid separately under the appropriate bid items identified in Specification Section 02220.

(2) New watermain pipe or gate valves. Those items installed within the Watermain Offset Work Area shall be measured and paid separately under the appropriate bid items identified in this Specification.

(3) Insulation. If insulation is needed for work within the Watermain Offset Work Area it shall be measured and paid separately under the appropriate bid item identified in this Specification Section 02510.

(4) Connection to existing 12-inch watermain. The standard scope of work for Connection to the existing 12-inch watermain within or adjacent to the Watermain Offset Work Area shall be measured and paid separately under the appropriate bid item identified in this Specification. Compensation for any work beyond the standard scope needed to complete the connection shall be included under the Watermain Offset item as described in Paragraph 5.b.1 above.

9. Water Service Lines

(a) 3/4" Type K Copper Water Service shall be measured and paid by LINEAL FOOT (LF) for pipe installed as measured along the axis of the pipe with no regard to depth or intervening fittings. Payment at the Bid Unit Price shall be compensation in full for all Work and costs to make

connection on the back side (i.e. house side) of the new curb stop, including excavation, pipe, bedding, backfill, and trench compaction.

- (1) 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.

10. Corporation Stops, Curb Stops & Box, Valve Box Cover

- (a) 0.75" Corporation Stop shall be measured and paid by EACH (EA) stop installed. The amount bid shall be compensation for all Work and costs including equipment, labor, materials, excavation, bedding, backfill, and trench compaction to complete the installation of the Corporation Stop, installed as a unit.
- (b) 0.75" Curb Stop & Box shall be measured and paid by EACH (EA) unit installed. The amount bid shall be compensation for all Work and costs including equipment, labor, materials, excavation, bedding, backfill, and trench compaction to complete the installation of the Curb Stop & Box, installed as a unit.
- (c) Valve Box (Water Services in Pavement) cover shall be measured and paid by EACH (EA) unit installed. The amount bid shall be compensation for all Work and costs including equipment, labor, materials, to complete the installation of the Valve Box for the water service curb stop located in pavement areas.

11. 4" Insulation

- (a) Polystyrene insulation shall be measured by the SQUARE FOOT (SF) in place and shall 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.

12. Pothole existing utility see Section 02210 Subsurface Investigation (Pothole Utility)

- 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 water system items, as indicated. Such items of work include but are not limited to:

1. No separate measurement or additional payment for scheduling and coordination of construction to maintain access to residents or businesses.
2. Furnishing and installing underground utility location system.
3. Concrete blocking or metal ties, include in the price bid for watermain.
4. Valve umbrella anchorage assembly, include in the unit price bid for valves.
5. Locating and connecting to an existing watermain or a hydrant, include in the price bid for watermain.
6. Locating and connecting to an existing water service line, include in the price bid for watermain.
7. Compaction, hydrostatic, leakage, disinfecting, coliform bacteria and conductivity testing, include in the price bid for 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, include 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, include in the price bid for watermain.

11. The wood and/or metal parts necessary to identify the ends of the unattached service lines and curb stops are 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 storm water flows around the construction zone, include in the price bid for watermain.
13. The painting or re-painting of hydrants with scratches and/or abrasions, include in the price bid for hydrants.
14. Providing temporary corporations, copper pipe, plugs, etc. for hydrostatic watermain testing, include in the unit price bid for watermain.
15. The cost to furnish and install copper water service couplings, include in the unit price bid for water service pipe.
16. If a separate bid item for removal and/or abandonment of the existing active water service or curb stop is NOT included in the Schedule of Unit Prices, completing work for removal / abandonment, shall be included in the price bid for water service pipe or incidental to mainline.
17. Existing services NOT necessary to service the properties will be removed and/or abandonment with all costs included in the price bid for watermain.
18. 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, include in the unit price bid for watermain.

1.3 SPECIFICATION REFERENCES

- A. Reference CEAM Specification No. 2611 shall apply to the water main and service line construction, except as modified herein.
- B. AWWA C-651 shall apply to the disinfecting of water mains, except as modified herein.
- C. Reference the following Sections of this Project Manual as appropriate:
 1. Section 02320 "Trench Excavation, Bedding and Backfill".
 2. Section 02705 "Manhole Structure Adjustment".
 3. Section 01330 "Submittals".
- D. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.4 SUBMITTALS

- A. Work plan for temporary service.
- B. 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.

PART 2 - PRODUCTS

2.1 OPEN CUT WATERMAIN MATERIAL

- A. The following water pipe materials will be allowed for use on this project:
 1. Ductile Iron Pipe (DIP), Class 52 with conductive gaskets or conductivity strips shall be used.
- B. Restrained Joint DIP Pipe and Fittings
 1. Flex-Ring Joint Pipe (DIP), as manufactured by American Ductile Iron Pipe or equal. The pipe shall be 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 shall be Flex-Ring Restrained Joint couplings as manufactured by American Ductile Iron Pipe or equal.

2.2 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 shall be used. Adaptors, back-up rings, and oversize sleeves shall be provided for transitions and connections to dissimilar types of pipe materials. All sleeve fittings shall be long mechanical joint.
 2. All fittings, valves, hydrants and restraining rods shall 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. shall be secured utilizing COR-BLUE T-BOLTS as manufactured by NSS Industries or approved equal.
 4. Quality control of all fitting manufacturers shall conform to the requirements of International Organization for Standardization (ISO).

2.3 FIRE HYDRANTS

- A. Hydrants shall be Waterous Improved Pacer Style, Model WB67-250, UL, or approved equal conforming to the following requirements:
 1. Conform to AWWA Standard C-502.
 2. 250 psi rating, with safety flange and stem coupling.
 3. The bury length shall be 8.0-feet, unless otherwise noted on the plans.
 4. Upper standpipe length shall be 28.0-inches.
 5. Nozzle configuration:
 - (a) DDP
 - (b) Two 2.5" National Standard hose connections
 - (c) One 5" Storz Pumper Nozzle
 6. The weep holes shall be plugged.
 7. National Standard Operating Nut.
 8. The hydrant shall be painted yellow.
 9. 6-inch mechanical joint pipe connection.
 10. Break-off flange with breakable rod coupling.
 11. Nozzle caps attached with metal chains
 12. After installation and testing apply is complete, the "field coat" of paint shall be applied with a brush.
- B. Fiberglass Flag: Hydrfinder Hydrant Marker, or approved equal:
 1. White fiberglass rod, with 4 red reflective bands without a bulb end.
 2. Minimum 60-inches long, 3/8-inch diameter.
- C. All hydrants shall have been manufactured in the year of construction or prior two calendar years.
 1. All hydrant extensions shall be manufactured by the same manufacturer as the hydrant.
 2. The local fire department shall be contacted before ordering hydrants to obtain the correct nozzle threads and type of operating nut and cap bolts.

2.4 VALVE AND VALVE BOX

- A. All water valves shall have been manufactured in the year of construction or prior two calendar years.
- B. All nuts and bolts shall be 304 stainless steel.
- C. Valve Box
 - 1. Cast-iron screw type valve boxes shall be installed where indicated on underground valves. The cast-iron valve boxes shall be of either the two-piece or three-piece style and shall be furnished with a stay-put cover with raised letters indicating "WATER." The shaft shall be 5¼-inch inside diameter.
 - 2. All valve box assemblies shall be furnished with a valve umbrella anchorage assembly. The valve umbrella anchorage assembly shall 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 shall 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.
 - 2. All internal and external surfaces of the valve body and bonnet shall have a fusion bonded epoxy coating complying with ANSI/AWWA C550 and C116/A21.16.
 - 3. Mechanical Joint Ends conforming to AWWA C111/A21.11.

2.5 WATER SERVICE PIPE AND FITTINGS

- A. Service Pipe and Fittings
 - 1. General
 - (a) Water service pipe and fittings shall conform to the provisions of 2611.2D, AWWA C800 and the following:
 - (b) Valves and fitting models to vary according to water main pipe size. See mfg. catalogue data.
 - (c) Saddles shall be provided for all corporation stops larger than 1½-inches if DIP pipe is installed.
 - (d) Curb boxes shall be adjustable and 8.0-feet in length with Minneapolis Pattern. Stationary rods are required.
 - 2. Copper Service Pipe Notes & Specifications:
 - (a) Copper pipe shall conform to ASTM B88, Seamless Copper Water Tubing, Type K, Soft Annealed Copper.
 - (b) Copper water service pipe connections shall be flared type.
 - 3. 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, unless otherwise shown on the plans.

WATER SERVICE PIPE & APPURTENANCES			
ITEM:	SERVICE PIPE SIZE	FLARED TYPE Valves & Fittings For TYPE K COPPER PIPE	
		A.Y. McDONALD / SMITH BLAIR MODEL #	MUELLER MODEL #
	3/4"	A.Y. McDONALD 74701B	MUELLER B-25000-N

Corporation Stop	1"	74701B	B-25000-N
	1.5"	74701B	B-25000-N
	2"	74701B	B-25000-N
Tapping Saddle		SMITH-BLAIR	MUELLER
	3/4"	313	N/A
	1"	313	N/A
	1.5"	313	N/A
	2"	313	N/A
Curb Stop		A.Y. McDONALD	MUELLER
	3/4"	76104	B-25154-N
	1"	76104	B-25154-N
	1.5"	76104	B-25154-N
	2"	76104	B-25154-N
Curb Box	1.5" Diam. Base Tap for 3/4" to 1.25" Curb Stops	A.Y. MCDONALD 5614	H-10300
Curb Box	2" Diam. Base Tap for 1.5" to 2" Curb Stops	A.Y. MCDONALD 5615	N/A

2.6 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.

2.7 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 shall be furnished to the nominal size as specified with ENGLISH threads.

2.8 INSULATION

- A. The insulation board shall be rigid expanded polystyrene conforming to the material requirements of MnDOT 3760.

PART 3 - EXECUTION

3.1 METHODS

- A. Trench excavation, bedding and backfill, see Section 02320 "Trench Excavation, Bedding and Backfill" of this Project Manual.

3.2 CONSTRUCTION REQUIREMENTS

- A. Use of Existing Water System
1. See Section 01310 – Coordination.
- B. Temporary Water Service:
1. Comply with requirements of:
 - (a) 01310 – Coordination.
 - (b) 01330 – Submittals.
 - (c) 02510 – Domestic Water System (this Section).

- (d) Any other applicable requirements of Project Manual.
2. During water main replacement, install and maintain temporary water service to all properties impacted or as shown on the Drawings.
 3. The temporary service will allow efficient removal of the existing water main and services, and installation of the new.
 4. The temporary service shall provide adequate pressure and volume to properties.
 5. Use a minimum of 2-inch diameter main line and 3/4-inch diameter service lines. The Contractor shall perform a pressure test to 100 psi and perform disinfection in accordance with Paragraph 3.6 on all temporary water lines prior to making any connections to homes or terminating existing water service. Results of the bacteria test shall be provided to the Engineer. The pressure test shall be witnessed by the Engineer.
 6. The Contractor shall install any main line valves that may be required to shut off or isolate an area based on the Contractors schedule of work or temporary water system. All valves installed shall be installed in their permanent location as shown on the Drawings per the new water main location. Any valve not installed in its permanent location shall not be paid for and shall be incidental to the temporary water main.
 7. Contractor shall submit a plan for temporary water system(s). Plan shall be approved by Engineer and Two Harbors Utilities prior to beginning Work. Coordinate all Work with the Engineer. If staging of the temporary system is necessary, provide a schedule and description of how this is to be accomplished.
 - (a) Plan shall include provisions to fully disinfect all temporary piping, valves, and fittings in accordance with CEAM Specification No. 2611.
 8. Coordinate temporary service connections and service interruptions with the property owners and Engineer at least 72-hours in advance.
 9. Temporary water piping shall not extend across an active street outside the project limits.
 - (a) If any portion of temporary water piping extends across an active alley, driveway, or sidewalk outside the project limits:
 - (1) Temporary piping shall be adequately protected by ramping or shallow trenching.
 - (2) Appropriate barricades, flashers, and/or warning signs shall be placed to identify the crossing locations to the traveling public.
 - (3) All surfaces disturbed at crossings shall be restored to a condition equal or better to the condition prior to the project.
 - (4) Sidewalk crossings must comply with ADA requirements if the sidewalk is to remain open while the temporary water piping is in place.
 - (b) Any portion of temporary water main within the project limits that may be subject to traffic at street or driveway crossings shall be adequately protected by ramping and/or shallow trenching.
 - (c) Protection of temporary water system and restoration of surfaces at crossings shall be included in the lump sum bid price.
 10. Provide emergency contact numbers for evenings and weekends.
 11. Maintain, inspect, and adjust the temporary piping as needed or directed throughout the construction.
 - (a) These activities shall be included in the lump sum bid price.
 12. If the Contractor fails to provide water service to affected residents within the constraints specified in the Project Manual, an amount equal to \$500.00 may be deducted from the amount due the Contractor for each occurrence per day until service is provided.

C. Service Considerations

1. Service Interruptions:

- (a) See Section 01310 – Coordination for scheduling and notification requirements.

3.3

INSTALLATION OF PIPE AND FITTINGS

A. Aligning and Fitting of Pipes

1. The Contractor, together with the utility's personnel, shall 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 shall be provided at all bends, tees, hydrants, valves and plugged crosses or wherever the watermain changes direction or dead ends

B. Hydrants

1. Support Hydrant on 8-inch concrete block or approved equal concrete base.
2. Brace according to Drawings.
3. Maintain hydrants in a plumb position during the backfill operation.
4. Attach a fiberglass marker to the hydrant using an existing flange bolt located at the back of the hydrant.
5. Attach an out of service hydrant marker at all Hydrants at the time of installation. Out of service hydrant marker are to be removed once all testing has passed and that segment of water main has been approved by the City and put into service.

C. Valves

1. Set and joint valves to new pipe in the manner as specified for cleaning, laying and jointing pipe. Location to be determined by the Engineer.
2. Valves and boxes shall be support on 8-inch concrete block, or approved equal concrete base, and encased with coarse filter aggregate as shown on Drawings.
3. Install valve adaptor.
4. Maintain valve box centered and plumb over the operating nut of the valve.
5. Set top of valve box flush with the existing surface to provide 12 inches of upward adjustment.

D. 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 shall be placed between the watermain and storm or sanitary sewer where adequate vertical clearance cannot be maintained. The insulation shall be placed on a bed of sand and sand shall be placed above the insulation to isolate the insulation from rocks and other sharp objects. The ultimate thickness of insulation required shall be achieved by using 2 layers of insulation, the second layer shall be placed perpendicular to first layer and the joints shall be offset.

E. Water Service Installation

1. 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.

2. 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.
3. The Contractor shall install 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.
4. The water services shall be hydrostatically tested and disinfected.
5. All water services shall be verified as operative and the corporation stops shall be turned to open position prior to backfilling.
6. Contractor shall collect photos as described in Section 01330 "Submittals" of this project manual prior to backfilling.

3.4 FIELD QUALITY CONTROL

- A. Electrical Conductivity Test shall conform to CEAM Spec. 2611

3.5 HYDROSTATIC TESTING

- A. Hydrostatic tests shall be conducted in accordance with the referenced specification. Individual tests from valve to valve are required. These tests shall 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.
- B. Water services, including corporation and curb stops, shall 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 shall be done with the corporation stops open.

3.6 DISINFECTION

- A. The Contractor shall disinfect and perform bacteriological testing on all temporary and permanent water distribution systems in accordance with the provisions of AWWA C651 and CEAM Spec. 2611.
- B. In the event unsatisfactory results are obtained, the Contractor shall take whatever steps are necessary to correct the sanitary conditions. The Contractor shall then re-take the bacteriological tests until satisfactory results are obtained.
- C. No lines shall be placed in service until a satisfactory result is obtained.

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

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SECTION 02530 - PIPE SEWERS - SANITARY

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 shall be paid according to the referenced specification or as modified below:
1. Construct Drainage Structure Design Special 1 (4007)
 - (a) Payment for all Structure Design Special 1 (4007) shall be at the unit price bid per LINEAR FOOT (LF) of structure installed as measured from the invert of the outlet pipe to the top of the manhole casting, at the appropriate unit price for each size and type as specified on the plans and in the Schedule of Unit Prices. The amount bid includes all work and material required to complete the structure. Concrete Collars and Casting assemblies shall be paid separately for each assembly furnished and installed.
 2. Casting Assembly
 - (a) Casting assemblies shall be measured per EACH (EA), complete in place and paid at the unit price bid
 3. PVC Pipe Sewer & PVC Sanitary Service Pipe
 - (a) PVC Pipe Sewer shall be measured and paid for by the Lineal Foot (LF) of pipe furnished and installed, according to type, size, regardless of depth, intervening fittings, as specified on the plans and in the Schedule of Unit Prices. Payment at the Bid Unit Price shall be compensation in full for all work and costs, including excavation, pipe, bedding, backfill, and trench compaction.
 - (1) Measurement shall be from center of structure to center of structure, or to the connection point of the existing pipe.
 4. Connect to Existing Sanitary Sewer
 - (a) Connecting to Existing Sanitary Sewer shall be measured and paid by EACH (EA) as specified in the Schedule of Unit Prices, complete and in place, at the appropriate unit price bid regardless of size or type of existing pipe. The amount bid shall include saw cutting the existing sewer pipe, adaptors, fittings, connectors, and all else necessary to complete a watertight joint.
 - (1) The installation and removal of any temporary connection(s) utilized to facilitate the sequencing or phasing of the sanitary sewer construction shall be considered incidental to the payment for this bid item, regardless of the quantity of material used in the temporary connection.
 5. Connect to Existing Sanitary Sewer Service
 - (a) Connecting to Existing Sanitary Sewer Service shall be measured and paid by EACH (EA) as specified in the Schedule of Unit Prices, complete and in place, at the appropriate unit price bid regardless of size or type of existing pipe. The amount bid shall include saw cutting the existing sewer pipe, adaptors, fittings, connectors, and all else necessary to complete a watertight joint.
 - (b) The exact number of service connections, i.e., new service lines or connection to existing service lines, is unknown. The quantities listed on the proposal are approximate. Final payment shall be based upon the number constructed for the various diameter of services constructed.

6. Wye Branches
 - (a) Wyes shall be paid by EACH (EA) of the type and size furnished and installed as specified on the plans and in the Schedule of Unit Prices.
 7. Pumping (Sanitary Bypass) - Temporary Conveyance of Wastewater:
 - (a) Pumping (Sanitary Bypass) shall be measured and paid by LUMP SUM (LS). The amount bid shall be compensation in full for all labor, equipment, and materials necessary to maintain the sanitary sewer flow through and around the project site. In the event the contractor chooses to complete the work without use of bypass pumping, no payment will be made.
 - (1) Measurement and payment shall be regardless of volume of material pumped, run time of pumps, length of pipes, or any other differences per location.
 8. Video Tape Pipe Sewer - Televising Sanitary Sewer Pipe
 - (a) Video Tape Pipe Sewer shall be measured and paid by LINEAL FOOT (LF). Measurement will be based upon units of linear feet of pipe televised, regardless of size, material type, depth, or existing flow. Pipe will be measured from centerline of structure to centerline of structure. Payment will be compensation for pipe preparation, televising, providing televising report, and all other associated costs.
- 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 sanitary sewer items, as indicated. Such items of work include but are not limited to:
1. No separate measurement or additional payment for scheduling and coordination of construction to maintain access to residents or businesses.
 2. Locating and connecting to an existing sanitary sewer pipe, include in the price bid for sanitary sewer.
 3. Dye water testing of all service lines encountered and the subsequent plugging of abandoned sewer services, include in the unit price bid for sanitary sewer.
 4. The costs of furnishing bends, adapters, cutting and removing the existing sanitary sewer pipe, include in the price bid for sanitary sewer.
 5. Locating and connecting to an existing sanitary sewer service laterals, include in the price bid for connect to existing sanitary sewer service.
 6. Adapters to adjust the diameter of the new service connections to match the existing service lines, include in the price bid for service connections.
 7. Leakage, vacuum, air and deflection testing, include in the price bid for sanitary sewer.
 8. The wood and/or metal parts necessary to identify the ends of unattached service lines, include in the price bid for sanitary sewer services.
 9. 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 storm water flows around the construction zone, include in the price bid for the associated sewer items.
 10. Furnishing and installing underground utility location system, include in the price bid for sanitary sewer.
 11. If a separate bid item for removal and/or abandonment of the existing active sanitary service or curb stop is NOT included in the Schedule of Unit Prices, completing work for removal / abandonment, include in the price bid for water service pipe or incidental to mainline.
 12. Existing services NOT necessary to service the properties will be removed and/or abandonment with all costs included in the price bid for pipe sewer (Sanitary).

13. 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.

1.3 SPECIFICATION REFERENCES

- A. The following Sections of this Project Manual:
 1. Section 02320 "Trench Excavation, Bedding and Backfill".
 2. Section 02705 "Adjust Miscellaneous Structures".
- B. Reference CEAM 2621 shall apply to the gravity sewers, sanitary manholes, and service laterals construction, except as modified herein.
 1. Reference MnDOT 2506 shall apply to manholes and castings, except as modified herein.
 2. References for Televising
 - (a) American Society of Testing and Materials (ASTM):
 - (b) D3034 – Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
 - (c) F679 - Standard Specification for Poly (Vinyl Chloride) (PVC) Large Diameter Plastic Gravity Sewer Pipe and Fittings.
 - (d) F1417 - Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines using Low-Pressure Air.
 - (1) National Association of Sewer Service Companies (NASSCO):
 1. PACP – Pipeline Assessment Certification Program
- C. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.4 SUBMITTALS

- A. Work plan for temporary service and/or bypass pumping if proposed.
 1. Plan is subject to approval of Engineer and Two Harbors Utility.
 2. Plan shall be submitted to Engineer for review a minimum 5 working days prior to beginning work affected by Plan.
 - (a) The bypass pump system will be of sufficient capacity to handle existing flow at peak flow times.
- B. Final DVD and log of post construction televised inspection.
 1. Submit 1 copy of the Written Report and Video Report within 30 days of completion of televising.
 2. Report Requirements:
 - (a) The Contractor will be provided with a map showing manhole and pipe identification numbers. All files shall be named with a number matching the pipe identification number.
 - (b) Each run shall consist of a starting and ending structure number and a zero reading on the counter at center of the starting structure.
 - (c) Examine each service wye by using the pan and tilt feature.
 - (d) Location, length and identify sags within the flowline of the pipe of 10% or greater, example 0.06' for an 8" diameter pipe.
 - (e) Location of change in pipe material to be noted.
 - (f) The video camera operator shall type into the video the station (distance), wye location on either the left or right side of the pipe, and any problems they notice while televising the sewer lines.
 - (g) Take a still photograph at any questionable joint or possible defect.

3. Provide a Written Report with a graphic cross section of the pipe showing the manholes, all wye connections, and defects. This report shall include PACP codes and descriptions.
 4. Submit a Video Report in a DVD format with audio, including a printable version of the Written Report and full video of all televised pipe runs.
- 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. Supplementary sketches shall be included, if necessary, to clearly indicate all work as constructed.
- D. Reference Section 01330 of this Project Manual for Submittals, for additional requirements.

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 ASTM D-3034 for 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 ¹ 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 shall 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 shall have integral cast watertight seal.
- Reinforced polypropylene plastic steps shall be furnished for all sanitary sewer manholes eight or more feet in depth.

B. Castings

- See Section 02705 of this Project Manual

C. Adjusting Rings

- See Section 02705 of this Project Manual

PART 3 - EXECUTION

3.1 METHODS

- Reference Section 02320 "Trench Excavation, Bedding and Backfill" of this Project Manual, except as modified herein.
- Contractor shall schedule coordination of construction to maintain access to residents or businesses.

3.2 INSTALLATION OF PIPE AND FITTINGS

A. Sanitary Main Installation

- No exception to the referenced specification is made.
- The profile of existing sanitary sewer mains to be removed within the project limits is not shown on the Drawings. This information was surveyed for the preparation of the bidding documents and is available upon request. The invert elevation of proposed sewer mains are at or lower than the measured invert

¹ Certa-Lok® Restrained Joint Catalog

elevation of existing sewer mains. Any temporary connections utilized to facilitate the sequencing or phasing of the sanitary sewer construction are anticipated to flow by gravity.

B. Sewer Service Installation

1. The locations of existing services have been provided on the Drawings based on the best information available at the time the bidding documents were prepared.
 - (a) The Contractor shall be responsible to verify the location of all active service lines on the sanitary sewer within the portion of sewer main to be replaced. The Contractor can utilize methods of dye testing, televising, or excavation in their investigation. The proposed plan for investigating the existing sewer services shall be reviewed with the Engineer and Owner for concurrence prior to proceeding.
 - (b) All labor, equipment, and materials utilized in verifying the location of existing services shall be considered to be included in the bid unit prices for the sanitary sewer main and service pipe. No separate measurement or compensation will be made for locating the existing services.
2. In the event an existing sanitary sewer service line not located per 3.1.B.1 is encountered, cut or severed during the construction, the Contractor shall dye water test such service to determine whether it is still active. Those service lines which are no longer in use shall be abandoned by plugging the severed upstream end with a suitable watertight plug approved by the Engineer.
3. The exact number of service connections, i.e., new service lines or connection to existing service lines, is unknown. The quantities listed on the proposal are approximate. Final payment shall be based upon the number constructed for the various diameter of services constructed.
4. The Contractor shall keep accurate records as to the location of the service connections, manholes, cleanouts, wyes, bends, risers, and connections to existing structures, pipe and stubouts as constructed. Measurements to service line shall 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.
5. The Contractor shall install new service pipe from the wye branch to the approximate location of the curb stop on the corresponding water service or the property line, as shown on the plans. Exact limits for installation of the new service lines shall be verified at the time of construction.
6. Each sanitary service installed on the Project is anticipated to be immediately connected to an existing active service line.
 - (a) In the event a service installation is not connected to an existing service, the Contractor shall furnish and install a wood or metal pole that extends to just below the ground surface. If wood is used, there shall 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.

C. Existing Service Considerations

1. Prior to the start of construction on the project, the Contractor shall establish a work plan and submit the plan to the Owner and Engineer for review and comment. The plan shall outline the method to be used to maintain service to the affected consumers and estimate the duration of any anticipated interruptions of service
 - (a) Service Interruptions:
 - (1) See Section 01310 – Coordination for scheduling and notification requirements.
 - (b) Bypass pumping
 - (1) If the Contractor intends to utilize bypass pumping in conjunction with any portion of the sanitary sewer main or service construction, the Contractor's work plan shall include details of the bypass plan and design.

- (2) Pumps and pipes used in the bypass shall be of adequate size and capacity to accommodate peak flows of the line being bypassed.
 - (3) For each proposed bypass, the bypass plan shall indicate the location where the bypass will begin, and the location where the bypass will discharge into the existing system.
 - (4) The bypass plan shall be submitted at least seven (7) days prior to proposed implementation to allow for review by the Owner and Engineer.
 - (5) The existing system shall not be interrupted until the bypass has been established and tested to ensure functionality and absence of leaks.
2. 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 shall 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.
 3. Contractor shall collect photos as described in Section 01330 "Submittals" of this Project Manual, prior to backfilling.

3.3 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 shall be watertight.
3. Connections to existing structures shall be watertight. The installation of Cor-N-Seal boots, or equal, shall be required.
4. Temporary connections utilized to facilitate the sequencing or phasing of the sanitary sewer construction shall conform to the requirements of 02530.3.3.A. Materials used for temporary connections shall conform to the requirements of 02530.2.1.

B. Manhole Base

1. Pre-cast bases shall be used for all manholes.
2. Integral cast base is required unless otherwise shown on the plans or approved by the Engineer.
3. Manholes shall be set on a minimum of 6.0-inches of compacted foundation material.

C. Casting Assembly Adjustment

1. See Section 02705 of this Project Specification.

3.4 FIELD QUALITY CONTROL

A. Deflection test

1. No exception to the referenced specification is made, CEAM 2621.

B. Sanitary sewer leakage testing

Leakage tests shall 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, CEAM 2621.

2. Hydrostatic Testing
 - (a) Hydrostatic testing shall not be allowed on this project, CEAM 2621.
- C. Televising Sanitary Sewer
 1. Televising
 - (a) Televising is required after the installation and backfill are complete and prior to the placement of roadway aggregate base or pavement.
 - (b) Immediately prior to televising, the televisor shall discharge sufficient clear water into the pipe to clean the pipe and assist in identifying sags and miss-alignment.
 - (c) Televising shall be performed by experienced personnel trained in locating breaks, obstacles and service connections by close circuit television and shall be PACP certified. All televising video shall be in color. The interior of the pipeline shall be carefully inspected to determine the location of any conditions which may indicate improper installation. Each individual reach of pipe shall be identified as a 'chapter' on the DVD.
 - (d) A DVD and suitable log shall be kept of all televising and later submitted to the Owner.
 2. General
 - (a) Provide a camera that will be self-propelled and will have the ability to tilt up and down and pan left and right. The camera must provide color images.
 - (b) Speed shall not exceed 30 feet per minute.
 3. Defects:
 - (a) Immediately correct any defects, faulty joints, cracked pipe, or other deficiency noted by the television inspection.
 - (b) A plan for repair shall be presented to and approved by the Owner and Engineer prior to the repair occurring.
 - (c) Re-televising all corrected pipe runs after correction.
 - (d) Any costs associated with correction and re-televising of the sewer system will be paid by the Contractor.

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

SECTION 02535 - FORCEMAIN

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 force main 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. HDPE Force Main
 - (a) HDPE Force main shall be measured by the LINEAR FOOT (LF) of the type and size furnished and installed as specified on the plans and in the Schedule of Unit Prices as measured along the axis of the pipe with no regard to depth or intervening fittings. The amount bid for force main shall include the costs of furnishing bends, adapters, granular materials for foundation, bedding, encasement and backfill.
 - 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 force main items, as indicated. Such items of work include but are not limited to:
 1. Furnishing and installing all bends, pipe restraints, blocking and fittings, include in the price bid for force main.
 2. Furnishing and installing underground utility location system, include in the price bid for force main.
 3. The furnishing and installing polyethylene encasement material, include in the price bid for force main.
 4. Concrete blocking or metal ties include in the price bid for force main.
 5. Hydrostatic, leakage and continuity testing, include in the price bid for force main.
 6. Delays due to other utility conflicts which result during the course of construction include in the price bid for force main.
 7. Protecting existing improvements from damage, include in the price bid for force main.
 8. Connecting to existing structures, include in the price bid for force main.
 9. Valve operating nut extension rod(s), include in the unit price bid for valves.
 10. If the forcemain is to be installed inside a casing pipe, furnishing and placing the carrier pipe (forcemain), carrier pipe support materials, sand fill and grout seals, include in the unit price bid for forcemain.

1.3 SPECIFICATION REFERENCES

- A. Reference the following Sections of this Project Manual as appropriate:
1. Section 02320 "Trench Excavation, Bedding and Backfill".
- B. ASTM D1248 shall apply, except as modified herein.
- C. ASTM D1784 shall apply, except as modified herein.
- D. ASTM D2241 shall apply, except as modified herein.
- E. ASTM D2513 shall apply, except as modified herein.

- F. ASTM D3139 shall apply, except as modified herein.
- G. ASTM D3261 shall apply, except as modified herein.
- H. ASTM F477 shall apply, except as modified herein.
- I. AWWA C900 shall apply, except as modified herein.
- J. AWWA C906 shall apply, except as modified herein.
- K. CEAM 2600 shall apply, except as modified herein.
- L. CEAM 2611 shall apply, except as modified herein.
- M. CEAM 2621 shall apply, except as modified herein.
- N. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.4 SUBMITTALS

- A. The diameter, wall thickness and type of material to be used for each installation. Pipe strength determination shall include calculations based on new material properties and long-term properties.
- B. The manufacturer's certificates of compliance with provisions of the referenced standards and these specifications.

PART 2 - PRODUCTS

2.1 OPEN CUT FORCE MAIN PIPE AND FITTING MATERIALS

- A. High Density Polyethylene (HDPE) Force Main
 - 1. Force main pipe material shall be extra high molecular weight, high density polyethylene (HDPE) conforming with the minimum structural standards of ASTM D3350 with cell classification 345434C. All HDPE pipe material shall meet the requirements of ASTM D1248 for a Type III, Class C, Category 5, Grade P34.
 - 2. 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.
 - (a) HDPE pipe shall have butt-fused joints with the internal fusing bead removed.
 - (b) The Contractor shall verify the lengths of conduit necessary in the field before fabrication.
- B. Pressure Polyvinyl Chloride (PVC) Pipe
 - 1. Force main pipe material shall be polyvinyl chloride (PVC) pipe having a cell classification of 12454.B as defined in ASTM Designation D1784. The dimensions, physical requirements, test methods and extrusion quality shall meet the requirements of ASTM D2241 for dimension ratio (SDR) of 26, pressure Class 160 and shall have IPS outside diameter. Gasketed integral bells shall conform to ASTM D3139 "Standard Specification for Joints for Plastic Pressure Pipe Using Flexible Elastomeric Seals." Gaskets shall conform to ASTM F477, "Standard Specification for Elastomeric Seals (Gaskets) for Joint Plastic Pipe."
- C. Pipe Joint Restraint Clamps
 - 1. The clamps (Series 6500 Ebaa Iron, Inc.) shall be ductile iron and supplied with a sufficient number of ductile iron bolts to restrain working and test pressures for this application.
- D. Pipe Fitting Materials
 - 1. The following pressure pipe fitting materials will be allowed for use on this project:

2. Mechanical Class 350 ductile iron fittings shall be used. Adaptors, back-up rings, and oversize sleeves shall be provided for transitions and connections to dissimilar types of pipe materials. All sleeve fittings shall be long mechanical joint.
3. All fittings, valves, hydrants and restraining rods shall 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.
4. All fittings, valves, hydrants, etc. shall be secured utilizing COR-BLUE T-BOLTS as manufactured by NSS Industries or approved equal.
5. Quality control of all fitting manufacturers shall conform to the requirements of International Organization for Standardization (ISO).

2.2 POLYETHYLENE ENCASEMENT

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

2.3 VALVE AND VALVE HOUSING

- A. All valves shall have been manufactured in the year of construction or prior calendar year.
- B. Valve Housing
 1. Cast-iron screw type valve boxes shall be installed where indicated on underground valves. The cast-iron valve boxes shall be of either the two-piece or three-piece style and shall be furnished with a stay-put cover with raised letters indicating "SEWER." The shaft shall be 5/4-inch inside diameter.
 2. All valve box assemblies shall be furnished with a valve umbrella anchorage assembly. The valve umbrella anchorage assembly shall be manufactured by Adaptor, Inc., Oak Crest, WI, or equivalent.
 3. High Density Polyethylene valve housings will not be allowed on this project.
- C. Gate Valves
 1. All valves up to and including 12.0-inches shall be gate valves conforming to the referenced specification.

PART 3 - EXECUTION

3.1 INSTALLATION OF PIPE AND FITTINGS

- A. Fusing/Fabrication
 1. The pipe shall be assembled and joined at the site using the butt-fusion method to provide a leak proof joint prior to insertion. All equipment and procedures used shall be in strict compliance with the manufacturer's recommendations and specifications.
 2. Threaded or solvent welded joints or connections are not permitted.
 3. Fusing shall be performed by personnel certified as fusion technicians by the manufacturer of the pipe and/or the fusing equipment.
 4. The butt-fused joints shall maintain true alignment and shall have uniform roll-back beads from the fusing process. The joint shall be watertight and shall have a tensile strength equal to that of the pipe.
 5. Adequate cooling time shall be allowed prior to the release of the pressure from the fusing unit.
 6. All joints shall be subject to acceptance by the Engineer prior to insertion.
 7. All defective joints shall be cut out and replaced.
- B. Blocking and Anchoring of Pipe
 1. A thrust block of cast-in-place concrete, which covers the installed fitting, is not permitted. Pre-cast concrete thrust blocks and other restraining devices such as restrained joint retainer glands, shall be

provided at all bends or wherever the force main changes direction, valves shall be tied to the nearest forcemain fitting.

C. Polystyrene Insulation

1. The Contractor shall install polystyrene insulation in those areas where the force main may be susceptible to frost or freezing, or as directed by the Engineer.

D. Polyethylene Encasement

1. The Contractor shall furnish and install polyethylene encasement for the entire main and all appurtenances in accordance with the referenced specification.

E. Methods

1. Reference Section 02320 "Trench Excavation, Bedding and Backfill" of this Project Manual.

3.2 FIELD QUALITY CONTROL

A. Tolerances

1. Pressure Systems

- (a) Horizontal alignment of the finished profile shall be within 0.5-feet of the planned alignment.
- (b) Vertical alignment of the finished profile shall be within 0.5-feet of the planned vertical alignment but in no event shall the invert elevation be closer to the existing ground surface or the future proposed ground surface, whichever is lower, than the minimum bury depth shown on the plans.
- (c) The final vertical alignment shall not conflict with future proposed gravity conduit grades shown on the plans, if any.
- (d) The final vertical alignment of forcemains shall not have high points that could permit the development of air locks at any location other than those identified on the plans.

- B. No exception to the referenced Specification is made unless a non-conductive force main is installed, in which case the conductivity requirements, as specified are deleted.

- C. The Engineer may require the Contractor to demonstrate that the forcemain meets the requirements of CEAM 2621 for pipe deflection.

- D. The Engineer may require the Contractor to perform a hydrostatic pressure test as specified in CEAM 2611 to a pressure of 100 psi.

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

SECTION 02620 - SUBSURFACE DRAINS

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) 6" Perf PVC Pipe (Drain) will be measured and paid by the LINEAL FOOT (LF) installed of the size specified in the Schedule of Unit Prices, as shown on the details and contract drawings. The amount bid shall include all work and materials required to successfully furnish and install the drain tile, including excavation, fittings, wyes, aggregate, geotextile fabric, removal of excess material and backfill.
 2. Drain Cleanouts – Inspection Tees
 - (a) 6" PVC Pipe Drain Cleanout will be measured and paid by EACH (EA) installed as shown on the details and contract drawings. The amount bid shall include all work and materials required to successfully furnish and install the cleanout, including excavation, fittings, wyes, aggregate, geotextile fabric, removal of excess material and backfill.
 3. Casting Assembly Special (Cleanout in Pavement)
 - (a) Casting Assembly Special cleanout cover shall be measured and paid by EACH (EA) unit installed. The amount bid shall be compensation for all work and costs including equipment, labor, materials, to complete the installation of the cleanout cover in concrete or pavement areas for the cleanouts located in impervious areas as show in the plans.
 4. Connect to Existing Structure (Storm Drain)
 - (a) Payment for connecting a new drain tile to an existing storm structure 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 core sawing the connection hole, constructing a soil tight joint, and concrete grout necessary to fill the void around the connection to the structure.
- 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 pipe culvert, storm sewer pipe, catch basin, manhole or subdrain, include in the price bid for subsurface drains (6" Perf PVC Pipe Drain).

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. No submittals for this section.

PART 2 - PRODUCTS

2.1 SUBSURFACE PIPE AND FITTINGS

- A. Perforated PVC drain pipe, SDR35 (ASTM D3034).
- B. Perforated PVC drain pipe, Sch 40 (ASTM D1785)
- C. Cleanout caps on inspection tees shall be cast iron screw in type.

2.2 GEOTEXTILE

- A. Geotextile wrap shall conform to MnDOT Spec. 3733, Type 1

2.3 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. Conform to details on Drawings.
- C. Construct at locations and elevations determined by Engineer or as shown on the Drawings.
- D. Pipe Bedding: granular material (3149).
- E. Grade: Unless otherwise specified or shown on the Drawings, the grade of pipes shall not be flatter than 0.50 percent or match the street grade.
- F. Soil tight plug upstream end of the drain pipe per manufacture recommendations.
- G. Sections of the drain pipe shall be firmly joined per manufacture recommendations for a soil tight seal.
- H. Place pipe so that the perforations are in the position indicated on the Drawings or designated by the Engineer.
- I. Cleanout inspection tees shall be installed flush or recessed 1 inch with the finished grade.
- J. Compaction: Conform to Section 02320.

3.2 CONNECTION TO STRUCTURE REQUIREMENTS

- A. Connect to hole provided in precast structure and seal joint with mortar (incidental).
- B. Where subdrains are connected to catch basins or manholes, rodent protection shall be installed.

3.3 CLEANING

- A. Flushing: After installation has been completed, pipes shall be flushed with sufficient water to remove material that has entered the pipes during construction.
- B. Existing inverts shall be protected during construction. If debris enters culverts or sewers, it shall be the responsibility of the Contractor to clean.

3.4 FIELD QUALITY CONTROL

- A. Do not backfill trench until the pipe has been inspected and approved by the Engineer.
- B. Compact all trench backfill with mechanical means by "Standard Compaction."

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

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SECTION 02630 - PIPE SEWERS - STORM

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. Construct Drainage Structure Design: 4022
 - (a) Payment for all Drainage Structures shall be at the unit price bid per LINEAR FOOT (LF) of structure installed as measured from the invert of the outlet pipe to the rim or flow line of the manhole casting, at the appropriate unit price for each size and type as specified on the plans and in the Schedule of Unit Prices. The amount bid includes all work and material required to complete the structure. Concrete Collar and Casting assemblies shall be paid separately for each assembly furnished and installed.
 2. Construct Drainage Structure Design Special (R-1) - Catch Basins
 - (a) Payment for all catch basins shall be at the unit price bid per LINEAR FOOT (LF) of structure installed as measured from the invert of the outlet pipe to the flow line of the catch basin casting, at the appropriate unit price for each size and type as specified on the plans and in the Schedule of Unit Prices. The amount bid includes all work and material required to complete the structure as show and listed in the plans. Casting assemblies shall be paid separately for each assembly furnished and installed.
 3. BID ALTERNATE: Construct Drainage Structure Design Special 3 & 4 - Storm Structures #2 & #9
 - (a) Payment for alternate storm water treatment Structures #2 & #9 as shown on the plans, shall be at the unit price bid per EACH (EA) structure installed with internal appurtenances for each size and type as specified on the plans and in the Schedule of Unit Prices. The amount bid includes all work and material required to complete the structure as show and listed in the plans. Casting assemblies shall be paid separately for each assembly furnished and installed.
 - (1) If this alternate is selected by Owner, these bid items will replace appropriate structure quantities in the standard bid and plans, Storm Structures #2 & #9.
 4. Casting Assembly
 - (a) Casting assemblies shall be measured per EACH (EA), complete in place and paid at the unit price bid.
 - (1) Payment shall include all materials and labor to install 4" white epoxy pavement marking "NO DUMPING" "DRAINS TO LAKE" placed on top of curb at the structure inlet locations as shown in the plans. Incidental to the catch basin casting assembly.
 5. RC Pipe Sewer DES 3006
 - (a) Storm Sewer Pipe shall be measured and paid for by the Lineal Foot (LF) of pipe furnished and installed for the size, type, and class, regardless of depth, at the appropriate unit price bid.
 - (1) Measurement shall be from center of structure to center of structure, or to the connection point of an existing pipe.

6. Connect to Existing Storm Sewer
 - (a) Payment for connecting a new storm sewer to an existing storm sewer shall be measured and paid per EACH (EA), as specified in the Schedule of Unit Prices, complete and in place, at the appropriate unit price bid. The amount bid shall include preparing the existing storm sewer pipe, cutting the pipe and shaping the invert, grouting doghouses for a soil tight connection, if necessary to fit the storm sewer pipe.
 7. Connect to Existing Structure (Storm) (Skunk Creek Tunnel)
 - (a) Connect a new storm sewer pipe to the Existing Structure (Skunk Creek Tunnel) shall be measured and paid by EACH (EA) connection, complete and in place, regardless of pipe size, at the appropriate unit price bid. The amount bid shall include removing the existing storm sewer connection, saw cutting opening, grouting void around pipe for a soil tight connection, and minor adjustments in elevation if necessary to connect the new storm pipe to the existing structure.
 8. Repair Drainage Structure – Tunnel Existing Storm Inlets
 - (a) Concrete repair patching an existing structure shall be measured and paid by EACH (EA) location structure patched, regardless of size of structure, size of patch, or number of patches in structure. Payment will include all cost associated to patching the structure as specified.
- 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. No separate measurement or additional payment for scheduling and coordination of construction to maintain access to residents or businesses.
 2. Locating and connecting to an existing storm sewer, include in the price bid for storm sewer.
 3. The costs of furnishing bends, adapters, cutting and removing the existing storm sewer pipe, include in the price bid for storm sewer.
 4. Locating and connecting to an existing storm sewer service laterals, include in the price bid for service connections.
 5. Use of geotextile fabric to wrap pipe joints in lieu of using mastic, include in the price bid for storm sewer.
 6. Maintenance of an appropriate storm water outlet during construction, include in the price bid for storm sewer.
 7. The cost of all labor, equipment and materials necessary for testing of storm sewer, if required, included in the price bid for storm sewer.
 8. 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.

1.3 SPECIFICATION REFERENCES

- A. The following Sections of this Project Manual as listed:
 1. Section 02320 "Trench Excavation, Bedding and Backfill" of this Project Manual.
 2. Section 02446 "ADJUST MISCELLANEOUS STRUCTURES" of this Project Manual.
- B. CEAM 2621 shall apply, except as modified herein.
- C. MnDOT 2503 shall apply, except as modified herein.
- D. MnDOT 2506 shall apply, except as modified herein.

- E. MnDOT 3236 shall apply, except as modified herein.
- F. MnDOT 3245 shall apply, except as modified herein.
- G. MnDOT 3733 shall apply, except as modified herein.
- H. MnDOT Standard Plates Manual with latest revisions.
- I. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.4 SUBMITTALS

- A. A DVD and suitable log shall be kept and later submitted to the Owner.

PART 2 - PRODUCTS

2.1 OPEN CUT SEWER PIPE AND FITTINGS

- A. Reinforced Concrete Pipe (MnDOT 3236)
 - 1. All reinforced concrete pipe shall have rubber gasketed joints or wrapped with geotextile fabric.
 - 2. All reinforced concrete pipe 18-inch diameter or smaller shall be Class 5.
 - 3. All reinforced concrete pipe 24" and larger shall be Class 3 or higher.
- B. Flexible Pipe Jointing
 - 1. Pipe joints for solid wall and profile wall polyvinyl chloride (PVC) pipe shall be in accordance with ASTM D3212 - 89. This includes the flexible elastomeric seals being rated at sustaining an internal pressure of 10.8 psi for 10 minutes. Pipe joints for high density polyethylene (HDPE) pipe shall be in accordance with ASTM D3261.

2.2 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. Storm treatment structures shall conform to the details in the Drawings or be an approved equal.
 - 3. Reinforced polypropylene plastic steps shall be furnished for all storm sewer manholes 8.0-feet or more in depth.
- B. Castings & Adjusting Rings
 - 1. Section 02705 of this Project Manual

2.3 GEOTEXTILE FABRIC

- A. MnDOT 3733, Type I, non-woven for use in wrapping joints in storm sewer.

PART 3 - EXECUTION

3.1 METHODS

- A. Trench excavation, bedding and backfill, see Section 02320 of these Specifications.

3.2 MANHOLE AND CATCH BASIN STRUCTURES

- A. Inverts in new structures shall be pours and shaped to the half section of equivalent size pipe conforming to the inlet and outlet pipe so as to allow for a free, uninterrupted flow with all surfaces sloping to the flow line.
- B. End of pipe at structure shall either be as precast by supplier or cut with a power saw to provide a straight, smooth pipe end.

C. Castings & Adjusting Rings

1. Section 02705 of this Project Manual

3.3 CONNECTION TO EXISTING PIPES

Where new pipes connect to existing pipes, connection shall be made using Fernco Large Diameter Coupling Series, or equal. Flowline of the pipes shall match, with no discernable jump or break in flowline across the connection point.

3.4 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 02705 - MANHOLES & CATCH BASINS - ADJUST CASTING

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. Adjust Frame & Ring Casting - Manholes
 - a) Measurement and Payment for adjusting manhole frame and rings, and valve boxes shall be paid per EACH (EA) for final adjustment. The amount bid includes all work and material required to complete the structure. Concrete Collar and Casting assemblies shall be paid separately for each furnished and installed.
 2. Adjust Frame & Ring Casting - Catch Basins
 - (a) Payment for catch basin adjusting frame and rings shall be paid per EACH (EA) for final adjustment. 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.
 - (1) Payment shall include all materials and labor to install 4" white epoxy pavement marking "NO DUMPING" "DRAINS TO LAKE" placed on top of curb at the structure inlet locations as shown in the plans. Incidental to the catch basin casting assembly.
 3. Adjust Frame & Ring Casting - Existing Structures
 - (a) Measurement and payment for adjusting existing manhole frame and rings, catch basin frame and rings, and valve boxes shall be paid per EACH (EA). Subsequent adjustments not caused by the Contractor's activities or delays, shall be paid per EACH (EA) of the type of item indicated.
 4. The installation and adjustment of the casting assembly for new structures and valve boxes, whether to match the bituminous base course or the bituminous wear course shall be paid for once, as outlined above with the installation of the item. Subsequent adjustments, not caused by the Contractor's activities or delays, shall be paid per EACH (EA) of the type of item indicated.
 5. Concrete Collar
 - (a) Measurement and payment for concrete collar (valve box & manhole). Measurement and payment shall be per EACH (EA) constructed as specified. Payment shall include:
 - (1) Core sawing pavement, aggregate base preparation, edge bond breaking material, concrete materials, rebar reinforcement, final casting adjustment, concrete placement, finishing, curing, protection of work and joint sealant material MnDOT 3722, 3723, 3725 or 3731 to complete the concrete collar around the casting assembly.
- 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 adjustment items. Such items of work include but are not limited to:
1. Saw cutting 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. Size to match opening in top slab or cone.
- B. Concrete adjusting rings shall be permitted.
 - 1. Minimum 3,000 psi concrete.
 - 2. Single hoop 8-gauge steel wire reinforcing.

2.2 CASTINGS

- A. All casting assemblies shall meet the certification requirements of the Minnesota Department of Transportation and be manufactured by a MnDOT approved source.
- B. Type and Style:
 - 1. For Sanitary Sewer Manholes: Neenah R-1733 solid lid with two concealed pickholes, 2.0-inch raised letters stamped "SANITARY SEWER" and Self-Sealing lid or approved equal. The frame shall be Neenah R-1733 or approved equal.
 - 2. For Storm Sewer Manholes: R-1733 solid lid with two concealed pickholes and 2.0-inch raised letters stamped "STORM SEWER". The frame shall be Neenah R-1733.
 - 3. For Catch Basins: R-3067-L or approved equal.
 - 4. All casting assemblies shall meet the certification requirements of the Minnesota Department of Transportation and be manufactured by a MnDOT approved source.

2.3 GEOTEXTILE FABRIC

- A. MnDOT 3733, Type I, woven for use in wrapping storm sewer castings.

2.4 VALVE BOX

- A. Conform to Section 02510 of this Project Manual.

2.5 CONCRETE MIX DESIGNATIONS

- A. Concrete Collars: See Section 02770

2.6 CHIMNEY SEALS

- A. Chimney seals accepted for use, when shown in the plans, shall be one of the following listed as standard of quality:
 - (a) Infi-Shield (exterior only)

PART 3 - EXECUTION

3.1 GENERAL CONSTRUCTION REQUIREMENTS

- A. Perform adjustments no more than 5 days prior to placement of final bituminous wearing course.
- B. Protect structures from damage.

- C. Prevent sand, concrete, mortar, or other debris from entering the structures.
- D. 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 1/4	1/4 to 3/8	1
County Highways	1/8 to 1/4	1/4 to 3/8	1
State Highways	1/8 to 1/4	1/4 to 3/8	1
Sidewalks	1/8 to 1/4	1/8 to 1/4	1
Parking Areas	1/8 to 1/4	1/4 to 3/8	1

- E. Adjust all structures located in non-bituminous surface areas to final design grade.
- F. Patch road to match existing pavement section.
- G. In no case shall the casting or valve box extend above the final wearing surface.
- H. 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.

3.2 MANHOLE & CATCH BASIN FRAME ADJUSTMENT

- A. See detail STR-18.
- B. Remove all dirt, debris, dust, and other deleterious material from surface prior to placement of first adjusting ring.
- C. The manhole casting shall be placed on a full mortar bed or bituminous mastic upon final setting. Mortar on top and bottom surfaces of all concrete adjusting rings; between surface of top slab or cone and bottom ring; between surface of top ring and casting; on entire surface area of ring with no gaps. Mortar thickness: ¼ inch to ½ inch. The inside and outside of the adjusted area shall be plastered with a minimum thickness of 1/2-mortar.
- D. No shims of any material allowed.
- E. Required cross slope of casting to be achieved by varying thickness of mortar.
- F. Wipe clean all excess mortar from the inside of frame and remove all mortar spills from the structure.
- G. 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.
- H. Total thickness of rings allowed: Minimum of 3 inches, maximum of 12 inches.
- I. Wrap entire casting and rings in geotextile. For structures with cone section, geotextile wrap to extend over a minimum length of 18 inches of the cone.

3.3 VALVE BOX ADJUSTMENT

- A. Adjust box by screwing top section up or down.
- B. Short sections inserted inside the existing top section are not allowed to perform adjustment.
- C. Install approved sections as needed for extension by removed top section, installing additional extensions, and re-installing top section.

****END OF SECTION****

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SECTION 02720 - AGGREGATE BASE

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. Aggregate Base Class 5
 - (a) A Bid Item has been provided for Aggregate Base (CV) Class 5.
 - (b) Measurement shall be based on the Cubic Yards (CY) of aggregate base material actually placed.
 - (1) Tickets must be provided for the material. Weight tickets are preferred. Tickets must be prepared by the supplier of the material. Measurement of material by the 'truck count' method will not be allowed.
 - (2) If weight tickets cannot be provided, volume tickets will be acceptable. Volume tickets shall be considered LOOSE VOLUME (LV). Loose Volume from the volume tickets shall be converted to COMPACTED VOLUME (CV) for payment under the pay item. Conversion shall be made based on the Loose to Compacted Volume conversion factor determined by the Engineer.
 - (c) If the aggregate base material is being wasted or placed excessively thick, the Owner reserves the right to deduct quantities that are in excess of Drawing thickness. Said quantities shall be based on material weighing 100 pounds per square yard of area per inch of thickness.
 - (d) Measurement includes placement of aggregate base under bituminous pavement, concrete pavement/driveway, concrete curb and gutter, concrete walk, and concrete pedestrian ramp.
 2. The quantities for aggregate base are strictly estimates and may be increased or decreased by any amount with no adjustment in unit price according to the extent of aggregate base used to backfill subgrade excavations and the extent of reclaimed material available.
 3. 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 items. Such items of work include but are not limited to:
1. Aggregate base material utilized for Bituminous Patch Special (3.5" & 5.5") is incidental to the Bituminous Patch bid item.
 2. Protecting existing improvements and previously accepted in-process improvements from damage.
 3. 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.
 4. 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.
 5. Furnishing and installing blue tops for gravel surface.
 6. 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. No exception to the referenced specification is made.
 - 1. Quality Control test results

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aggregate Base: Conforming to MnDOT Spec. 3138.2.B, Virgin Class 5 Aggregate.
- B. MnDOT 3138 is hereby modified as follows:

Replace Table 3138-1 with the following:

Table 3138-1				
Quality Requirements for Virgin Materials				
Requirement	Class			
	1 and 2	3 and 4	5 and 5Q	6
Max Shale, if No. 200 ≤ 7% by mass	NA	10.0%	10.0%	7.0%
Max Shale, if No. 200 > 7% by mass	NA	7.0%	7.0%	7.0%
Minimum Crushing Requirements *	NA	NA	10%	15%
Maximum Los Angeles Rattler (LAR) loss from carbonate quarry rock	40%	40%	40%	35%
Maximum Insoluble residue for the portion of quarried carbonate aggregates passing the No. 200 sieve	10%	10%	10%	10%
Maximum amount of Brick	1.0% #			
Maximum amount of other objectionable materials including but not limited to: wood, plant matter, plastic, plaster, and fabric	0.3% #			
* Material crushed from quarries is considered crushed material.				
# The Contractor/Supplier may not knowingly allow brick and other objectionable material and must employ a QC process to screen it out, before it becomes incorporated into the final product.				

Replace Table 3138-3 with the following:

Table 3138-3 Base and Surfacing Aggregate (containing less than 25 percent recycled aggregates) Total Percent Passing *							
Sieve Size	Class 1 (Surfacing £)	Class 2 (Surfacing β)	Class 3 (Subbase)	Class 4 (Subbase)	Class 5 (Base)	Class 5Q (Base)	Class 6 (Base)
2 in	—	—	100	100	—	100	—
1½ in	—	—	—	—	100	—	100
1 in	—	—	—	—	—	65 - 95	—
¾ in	100	100	—	—	70 - 100	45 - 85	70 - 100
⅝ in	65 - 95	65 - 90	—	—	45 - 90	35 - 70	45 - 85
No. 4	40 - 85	35 - 70	35 - 100	35 - 100	35 - 80	15 - 52	35 - 70
No. 10	25 - 70	25 - 45	20 - 100	20 - 100	20 - 65	10 - 40	20 - 55
No. 40	10 - 45	12 - 35	5 - 50	5 - 35	10 - 35	5 - 25	10 - 30
No. 200	8.0 - 15.0	5.0 - 16.0	5.0 - 10.0	4.0 - 10.0	3.0 - 10.0	0.0 - 10.0	3.0 - 7.0

* If product contains recycled aggregate, add letters in parentheses for each aggregate blend designating the type of recycled products included in the mixture.
 (B) = Bituminous, (C) = Concrete, (G) = Glass
 (BC) = Bituminous and Concrete, (BG) = Bituminous and Glass
 (CG) = Concrete and Glass, (BCG) = Bituminous, Concrete, and Glass
 £ Recycled concrete when used for surfacing is only allowed for shoulders
 β Class 2 must be composed of 100% crushed quarry rock per 3138.2.B.2.

Replace Table 3138-4 with the following:

Table 3138-4 Base and Surfacing Aggregate (containing 25% or more recycled aggregates & 75% or less recycled concrete) Total Percent Passing *						
Sieve Size	Class 1 (Surfacing £)	Class 3 (Subbase)	Class 4 (Subbase)	Class 5 (Base)	Class 5Q (Base)	Class 6 (Base)
2 in	—	100	100	—	100	—
1½ in	—	—	—	100	—	100
1 in	—	—	—	—	65 - 95	—
¾ in	100	—	—	70 - 100	45 - 85	70 - 100
⅝ in	65 - 95	—	—	45 - 90	35 - 70	45 - 85
No. 4	40 - 85	35 - 100	35 - 100	35 - 80	15 - 52	35 - 70
No. 10	25 - 70	20 - 100	20 - 100	20 - 65	10 - 40	20 - 55
No. 40	10 - 45 † 5 - 45	5 - 50	5 - 35	10 - 35	5 - 25	10 - 30
No. 200	5.0 - 15.0 † 0 - 15.0	0 - 10.0	0 - 10.0	0 - 10.0	0 - 10.0	0 - 7.0

* Add letters in parentheses for each aggregate blend designating the type of recycled products included in the mixture.
 (B) = Bituminous, (C) = Concrete, (G) = Glass
 (BC) = Bituminous and Concrete, (BG) = Bituminous and Glass
 (CG) = Concrete and Glass, (BCG) = Bituminous, Concrete, and Glass
 † Note: For Class 1, if the bitumen content is ≥ 1.5%, the gradation requirement is modified to 5-45% for the #40 sieve and 0 - 15.0% for the #200 sieve.
 £ Recycled concrete is only allowed for shoulders

Add the following to MnDOT 3138.2.E:

- (6) The Contractor may substitute reclamation material (recycled bituminous and aggregate) for class 3, 4, 5, or 6, if used for base, subbase, stabilizing aggregate, or fine aggregate bedding. Meet the gradation in Table 3138-6, and all other requirements of 3138.

Table 3138-6				
Reclamation Material Permitted as a Substitute for Class 3, 4, 5, or 6				
Total Percent Passing				
Sieve Size	Class 3	Class 4	Class 5	Class 6
3" *	100	100	100	100
¾"	---	---	70 - 100	70 - 100
#3/8"	---	---	45 - 90	45 - 85
#4	35 - 100	35 - 100	35 - 80	35 - 70
#10	20 - 100	20 - 100	20 - 65	20 - 55
#40	5 - 50	5 - 35	10 - 35	10 - 30
#200	0 - 10.0	0 - 10.0	0 - 10.0	0 - 7.0
* Note for bedding within 2 feet of plastic pipe the requirement is 100% passing the 1" sieve.				

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 shall be compacted to 100 percent Standard Proctor Density using the Specified Density 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 Contractor shall perform and pay for Contractor Quality Control Testing in accordance with the MnDOT Schedule of Materials Control.
- 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. 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.
- D. The Contractor shall cooperate fully with the individuals performing the tests.
- E. The OWNER will arrange for and pay for Quality Assurance (QA) testing. Should any of the specified (QA) tests fail, the Contractor shall pay for additional tests as may be necessary to satisfy the Engineer that the requirements have been met. If the material is determined to be out of compliance with MnDOT 2211, price reductions or material rejections will be implemented per MnDOT 2211.

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.
- B. The Owner may arrange for having the following testing performed:
 - 1. Compaction tests (including Standard Proctor) in accordance with the SALT Schedule of Materials Control.
- C. All testing shall be performed by an independent testing laboratory.
- D. The Contractor shall cooperate fully with the individuals performing the tests.
- E. Samples for testing shall be taken from material in place, in the roadway. All sampling methods shall be in accordance with the SALT Schedule of Materials Control.
- F. Should any of the specified tests fail, the Contractor may arrange and pay for additional tests as may be necessary to satisfy that the requirements have been met.

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

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SECTION 02730 - 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. Aggregate Surfacing
 - (a) A Bid Item has been provided for Aggregate Surfacing (CV) Class 5.
 - (b) Measurement shall be based on the Cubic Yards (CY) of aggregate base material actually placed.
 - (1) Tickets must be provided for the material. Weight tickets are preferred. Tickets must be prepared by the supplier of the material. Measurement of material by the 'truck count' method will not be allowed.
 - (2) If weight tickets cannot be provided, volume tickets will be acceptable. Volume tickets shall be considered LOOSE VOLUME (LV). Loose Volume from the volume tickets shall be converted to COMPACTED VOLUME (CV) for payment under the pay item. Conversion shall be made based on the Loose to Compacted Volume conversion factor determined by the Engineer.
 - (c) If the aggregate base material is being wasted or placed excessively thick, the Owner reserves the right to deduct quantities that are in excess of Drawing thickness. Said quantities shall be based on material weighing 100 pounds per square yard of area per inch of thickness.
 2. The quantities for aggregate surfacing are strictly estimates and may be increased or decreased by any amount with no adjustment in unit price according to the extent of aggregate base used to backfill subgrade excavations and the extent of reclaimed material available.
- 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. No exception to the referenced specification is made.

1. Quality Control test results

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials included here consist of new aggregate surfacing, Class 5. If additional rock is used to provide a coarser Class 5 gradation, the added materials must pass the Los Angeles Rattler (L.A.R.) test.

B. MnDOT 3138 is hereby modified as outlined in Section 02720 Aggregate Base:

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 surfacing to be constructed shall be as shown on the plans. Aggregate surfacing construction shall take place only after the street subgrade condition and grade has been examined by the Engineer.

C. All aggregate surfacing shall be compacted to using the Quality Compaction Method.

3.2 SOURCE QUALITY CONTROL

A. The Contractor shall perform and pay for Contractor Quality Control Testing in accordance with the SALT Schedule of Materials Control.

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. 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.

D. The Contractor shall cooperate fully with the individuals performing the tests.

E. The OWNER will arrange for and pay for Quality Assurance (QA) testing. Should any of the specified (QA) tests fail, the Contractor shall pay for additional tests as may be necessary to satisfy the Engineer that the requirements have been met. If the material is determined to be out of compliance with MnDOT 2211, price reductions or material rejections will be implemented per MnDOT 2211.

3.3 FIELD QUALITY CONTROL

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

B. The Owner may arrange for having the following testing performed:

1. Compaction tests (including Standard Proctor) in accordance with the SALT Schedule of Materials Control.

C. All testing shall be performed by an independent testing laboratory.

D. The Contractor shall cooperate fully with the individuals performing the tests.

- E. Samples for testing shall be taken from material in place, in the roadway at locations approved by the Engineer. All sampling methods shall be approved by the Engineer.
- F. 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******

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SECTION 02740 - PLANT-MIXED BITUMINOUS 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 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. A Bid Item has been provided for Bituminous Material for Tack Coat:
 - (a) Measured by volume in Gallons (GAL) at 60 degrees F.
 - (b) Payment for bituminous material used for Tack Coat includes compensation in full for all costs incidental to the furnishing and application at the Bid Unit Price per gallon.
 - (c) Payment for the accepted quantity of asphalt emulsion shall be at the contract price per unit of measure for undiluted asphalt emulsion and neat cutback.
 - (d) Cleaning of all debris and dirt from the previous bituminous surfaces prior to placement of Tack Coat is included in the Bid Unit Price for Tack Coat.
 - (e) Payment for tacking exposed edges of existing bituminous surfaces and concrete curb and gutter in conjunction with lower wearing course placement is considered incidental to the placement of the lower wearing course.
 - 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, haul and place the bituminous course specified.
 - (a) Partial payment will not exceed 70 percent of the total calculated payment until the required testing and product documentation is received and found to be acceptable to the Engineer.
- B. The maximum payment factor for density is 100 percent.
- C. This project is not subject to the provisions of MnDOT 2399, Pavement Surface Smoothness.
- 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 Specification 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 and Technical Memoranda in force 30 calendar days prior to bid date and referencing the use of English units of measure, 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. Submit the Job Mix Formula (JMF) to the Engineer minimum of 5 working days prior to paving.
- 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
- B. 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>.
- C. 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.

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) ¹ SS-1, SS-1H, CSS-1, CSS-1H	MC Cutback ² MC-250
New HMA	0.03 – 0.05	0.06 – 0.10	0.03 – 0.05
Aged HMA ³ or Un-milled PCC	0.06 – 0.08	0.12 – 0.16	0.05 – 0.08
Milled HMA or Milled PCC	0.08 – 0.11	0.16 – 0.22	0.07 – 0.10

¹As provided by the asphalt emulsion supplier (50/50 dilution)

²When approved by the Engineer

³Older 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-1H70 to 160 Degrees Fahrenheit
 - (b) MC-250165 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 MnDOT 2360.3.D.1.
 1. 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)”.

- (a) Table 2360-20 Longitudinal Joint Density Requirement of the referenced MnDOT 2360 (Plant Mixed Asphalt Pavement) Specification is hereby deleted.
- (b) 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.

- (c) 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

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

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

- (f) 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.

- (g) 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.

- (h) 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.
- C. The Contractor shall perform and pay for Contractor Quality Control Testing in accordance with the SALT Schedule of Materials Control.
- D. 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.
- E. The Contractor shall cooperate fully with the individuals performing the tests.

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. Lift thickness tolerances shall be as specified in MnDOT 2360
 - 2. 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.
 - 3. The Engineer shall calculate deficient pavement areas using the locations and thickness results of all core samples and prorating the thickness profile.

4. At the discretion of the Engineer as an alternative to removal and replacement, the Engineer may allow a \$1.00 deduction per square yard will be made for each 1/8-inch deficiency of thickness beyond the specified tolerances.
 5. Reduction in payment for bituminous courses constructed to more than the maximum permissible thickness shall be in accordance with MnDOT 2360.3.E, except that the thickness tolerances specified herein apply.
- C. Testing:
1. Testing in accordance with the SALT Schedule of Materials Control.
 2. Contractor shall send a copy of the testing results to the Engineer.
 3. 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******

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SECTION 02741 - BITUMINOUS PATCH

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 Bituminous Patch Special (5.5") for County Road and Bituminous Patch Special (3.5") Alley and Driveway shall be at the unit price bid per SQUARE YARD (SY) of bituminous patch. 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 Material
 - (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) Transitional Bituminous Patch as described in Section 01310 – Coordination.
 - (b) No exception to the referenced specifications is made.

1.3 SPECIFICATION REFERENCE

- A. MnDOT 2104 shall apply, except as modified herein.
- B. MnDOT 2105 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.
 - 1. MnDOT 2360, Bituminous Quality Assurance, shall apply to the construction of plant-mixed bituminous surfacing, except as modified herein.
 - (a) MnDOT 02360.6B4: The maximum payment factor for density is 100 percent.

(b) MnDOT 02360.7C (Pavement Smoothness Specification – IRI (International Roughness Index) is hereby DELETED

G. 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. Subgrade Preparation

1. No exception to the referenced specification is made.

B. Bituminous Tack Coat

1. The bituminous material for tack coat shall be per Section 02740.2.1.A.

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

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

G. The bituminous tack coat shall be applied at a rate per Section 02740.3.1.A

H. 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.

I. The bituminous surfacing shall be constructed with maximum deviation of plus or minus ¼-inch from the planned compacted thickness.

J. Compaction of all bituminous mixtures shall be at least the minimum required Maximum Density value per specification 2360.3.D.1 requirement.

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 <u>Below</u> Adjacent Bituminous Pavement (inch)	Distance <u>Above</u> Adjacent Bituminous Pavement (inch)
City Streets	0	5/8
County Highways	0	3/8
State Highways	1/8	1/4
Sidewalks	1/8	1/4
Parking Areas	1/4	1/4

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

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SECTION 02749 - PAVEMENT MARKINGS

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 application of pavement markings 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. Pavement markings of the specified width will be measured separately by LINEAL FOOT of each type constructed complete in place as specified.
 - (a) Broken line will be measured by the actual length of line marked and will not include the gap between the broken lines.
 - (b) Double solid line will be measured by actual length of 2 lines marked and not measured individually as single lines.
 2. Pavement messages will be measured separately by the EACH (EA) of each type constructed.
 3. Crosswalk blocks will be measured by the SQUARE FOOT for the actual area of paint and will not include the space between the blocks.
 4. Curb Lettering at storm inlets
 - (a) Payment shall include all materials and labor to install 4" white epoxy pavement marking "NO DUMPING" "DRAINS TO LAKE" placed on top of curb at the structure inlet locations as shown in the plan paid for as incidental to project.
- 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 pavement markings items. Such items of work include but are not limited to:
1. All costs of preparing the surface, including sandblasting and removing of existing (old) pavement markings on existing pavement areas where a new marking layout is to occur.
 2. Recess grinding of pavement surface for the application of markings.
 3. Controlling and protecting traffic.
 4. Maintaining the work, together with any other expenses incurred in completing the work that are not specifically included for payment under other Contract Items.

1.3 SPECIFICATION REFERENCES

- A. MnDOT 2581 shall apply to temporary, removable pavement markings, except as modified herein.
- B. MnDOT 2582, 3354, 3590, 3591 and 3592 shall apply to permanent and painted pavement markings, except as modified herein.
- C. MnDOT Pavement and Marking Specifications shall apply. These specifications may be found at <http://www.dot.state.mn.us/products/pavementmarkings/information.html>. Exceptions are as modified herein:
1. Specification - High Durability Preformed Pavement Markings

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

1.4 SUBMITTALS

A. The *Construction Striper Operations Report Form* shall be completed and submitted to the Engineer.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Interim Pavement Markings for application on bituminous base course prior to the construction of the bituminous wearing course shall be:

1. High Solids Water Based Traffic Paints, in accordance with the referenced specification.
2. Drop-On Glass Beads, in accordance with the referenced specification.

B. Permanent Pavement Markings for application on the final bituminous wearing course shall be:

1. High Solids Water Based Traffic Paints, in accordance with the referenced specification.
2. Drop-On Glass Beads, in accordance with the referenced specification.
3. Patterned Preformed Polymer Pavement Marking Tape, in accordance with the referenced specification

2.2 EQUIPMENT

A. Application equipment for latex and epoxy resin systems shall consist of a machine of the spray type capable of applying the material under pressure at a controlled temperature through nozzles equipped with remotely controlled cutoff mechanisms and suitable line guides that will produce clean cut lines and prevent excessive material drift.

B. For highway and street applications, the marking material shall be applied with truck mounted traveling units properly equipped to apply the stripes as required. Where two or more lines are to be applied closely spaced, the machine shall be equipped to apply those stripes simultaneously. For application of broken lines, the applying unit shall include an automatic feed to control device capable of being set to produce the specified stripe gap ratio.

PART 3 - EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

- A. At the time of applying the marking material, the application area shall be free of contamination. The contractor shall clean the surface prior to the line application in a manner and to the extent required by the Engineer.
- B. The Contractor shall sandblast or otherwise remove existing (old) pavement markings on existing pavement areas where a new marking layout is to occur.
- C. Pavement markings shall not be applied when the wind or other conditions cause a film of dust to be deposited on the pavement surface after cleaning and before the marking material can be applied.
- D. The filling of tanks, pouring of materials or cleaning of equipment shall not be performed on unprotected pavement surfaces unless adequate provisions are made to prevent spillage of the material.
- E. No striping operations will be permitted between sundown and sunrise without written permission from the Engineer.
- F. All material shall be placed in a workmanlike manner, which shall result in a clearly defined line.
- G. All pavement striping shall be 4.0-inches wide, unless noted otherwise on the plans.

- H. Application for the marking material shall be such as to provide uniform film thickness throughout the coverage area. Stripe ends shall be clean cut and square, with a minimum of material beyond the cutoff.
- I. All pavement markings not conforming to the requirements of the Contract shall be removed and replaced or otherwise repaired to the satisfaction of the Engineer. Removal of unacceptable work shall be accomplished with suitable blasting or grinding equipment unless other means are approved by the Engineer.

3.2 ACCEPTANCE

- A. The *Construction Stripper Operations Report Form* shall be completed and submitted to the Engineer. The form can be found at the link below:

<http://www.dot.state.mn.us/products/pavementmarkings/information.html>

****END OF SECTION****

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SECTION 02770 - CONCRETE CURBING AND DRIVEWAY PAVEMENT

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. Bid items have been provided for Concrete Driveway Pavement. Separate bid items have been provided for each thickness to be constructed. All Concrete Driveway Pavement shall be measured and paid for by the thickness shown on the Drawings. Measurement shall be per constructed as specified, complete in place.
 - (a) Concrete Driveway Pavement bid items are intended for:
 - (1) Residential and commercial driveways, including portions that also function as walk.
 - (2) Alley aprons, including portions that also function as walk.
 - (3) Bus Pad on 5th Avenue (Bid Add Alternate 1).
 - (b) Payment at the bid unit price shall include:
 - (1) Concrete materials, subgrade and base preparation, placement of materials, finishing, curing, protection, and backfilling.
 - (2) Integral curb required with Concrete Driveway Pavement shall NOT be included in the payment for Concrete Driveway Pavement. Any such integral curb required shall be measured and paid for separately as Concrete Curb Design V.
 - (3) Concrete curb and gutter, and concrete valley gutter adjacent to the Concrete Driveway Pavement for the bus pad on 5th Avenue (Alternate 1) shall NOT be included in the payment for Concrete Driveway Pavement. Those items will be measured and paid for separately as Concrete Curb and Gutter Design B624 and Concrete Valley Gutter, as shown on the Drawings.
 - (c) Excavation, aggregate base, and saw cutting just prior to placing new driveway pavement will be paid separately per Sections 02330, 02720, and 02220, respectively.
 2. Bid items have been provided for Concrete Curb and Gutter Design B618 and B624. Separate measurement and payment shall be made for each type of Concrete Curb and Gutter constructed. Curb and gutter sections shall be measured and paid for as shown on the Drawings. Measurement shall be per LINEAL FOOT(LF) of curb and gutter measured along the face of curb and constructed as specified. Payment at the bid unit prices shall include:
 - (a) Concrete materials, subgrade and base preparation, placement of materials, finishing, curing, protection of work, reinforcement, and backfilling.
 - (b) Measurement shall not include frames/castings that are located within the curb.
 - (c) No separate measurement or additional payment for modifications at driveways, pedestrian ramps, transition sections, infiltration features, or installation of catch basins or radii.
 - (d) No separate measurement or additional payment for modification to provide "gutter out" orientation.

- (e) No separate measurement or additional payment for modifications where structure is located within gutter.
 - (f) At locations where stormwater inlets are located curb top shall be painted with 4" white epoxy lettering "NO DUMPING" and "DRAINS TO LAKE" which is incidental to project pay items.
 - (g) All backfilling of curb and final grading shall be considered incidental to the Project.
 - (h) Gutter width may vary between 12" and 24" due to driveway transitions, alley transitions or other existing conditions.
 - (i) Curb formed adjacent integral to valley gutter on 5th Avenue (Bid Add Alternate 1) shall be included in the measurement of Concrete Curb and Gutter Design B624.
3. A bid item has been provided for Concrete Curb Design V.
- (a) The Concrete Curb and Gutter Design V bid item is intended for:
 - (1) Cheek Walls adjacent to concrete steps.
 - (2) Integral curb required with Concrete Walk.
 - (3) Integral curb required with Concrete Driveway Pavement as directed by Engineer.
 - (b) Measurement shall be per LINEAL FOOT (LF) of curb measured along the top of curb/cheek wall and constructed as specified. Payment at the bid unit price shall include:
 - (1) Concrete materials, subgrade and base preparation, concrete placement, finishing, curing, protection of work, reinforcement, and backfilling.
 - (2) Measurement shall not include frames/castings that are located within the curb.
 - (3) No separate measurement or additional payment for modifications at driveways, pedestrian ramps, transition sections, infiltration features, or installation of catch basins or radii.
 - (4) All backfilling of curb and final grading shall be considered incidental to the Project.
 - (5) Curb height may vary between 0" and 12" above adjacent surface, due to transitions or existing adjacent backslopes.
4. A bid item has been included for Concrete Valley Gutter.
- (a) The Concrete Valley Gutter bid item is intended for construction of valley gutter across the bus pad and angled parking on 5th Avenue (Bid Add Alternate 1) as shown on the Drawings.
 - (b) Measurement shall be per SQUARE YARD of valley gutter actually constructed in accordance with the Detail shown on the Drawings. Payment at the bid unit price shall include:
 - (1) Concrete materials, subgrade and base preparation, concrete placement, reinforcement, finishing, curing, protection of work, and backfilling.
 - (2) Concrete Driveway Pavement and Concrete Curb and Gutter adjacent to Concrete Valley Gutter shall be measured and paid separately under the appropriate bid items. Concrete Driveway Pavement and Concrete Curb and Gutter shall NOT be included in the measurement of Concrete Valley Gutter.
- 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. No separate measurement or additional payment for scheduling and coordination of construction to maintain access to residents or businesses. Driveway and Apron constructed in segments shall be measured and compensated in an identical manner as to those constructed in their entirety.

2. Furnishing and installing material, as specified, to seal the joints.
3. Unless otherwise shown on the typical section, subcutting the excavation below the bottom of the pavement, furnishing, placing and compacting of aggregate base, Class 5, backfilling edges and related work.
4. High early strength concrete where specifically called for in the plans and specifications.
5. Cold weather concrete protection methods and materials required.
6. Provide adequate barricades and personnel to protect fresh concrete from pedestrian traffic and graffiti.
7. Provide temporary walk ways spanning fresh concrete where required to maintain access into building entrances.
8. Casting and curing concrete compressive test cylinders and the performance of compressive strength tests as specified.
9. Slump and air entrainment testing.

1.3 SPECIFICATION REFERENCES

- A. MnDOT 2360 shall apply except as modified herein.
- B. MnDOT 2531 shall apply, except as modified herein.
- C. MnDOT 3137 shall apply except as modified herein.
- D. MnDOT Standard Plan Sheets and Standard Plates.
- E. City of Two Harbors Standards.
- F. 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.
- B. Federal, state and/or state-aid funded project: The Contractor shall submit the Concrete Information Form to the Project Engineer four weeks prior to construction. The concrete Information Form is available at: <http://www.dot.state.mn.us/materials/concretemixdesigns.html>.

The Project Engineer will submit the forms to the MnDOT Concrete Office which will review the contractor's mix design.

- C. Batch tickets for concrete mix at the time of material delivery to site.

PART 2 - PRODUCTS

2.1 CONCRETE MIX DESIGNATIONS

- A. High early strength concrete shall be used for all Driveways, Concrete Collars, Alley Entrance Sidewalk crossings and Alley Aprons: 3HE52
- B. Machine Placed Curb & Gutter: Mix No. 3F32
- C. Concrete Collars: Mix No. 3G52
- D. Concrete Pads, Hand Placed Curb & Gutter: Mix No. 3F52

2.2 MATERIAL

- A. Fifty percent of the coarse aggregate shall be Class A material as specified in MnDOT 3137.
- B. The coarse aggregate designation shall be ASTM #67* from MnDOT Table 3137-4.
 - 1. Class R shall not be used as a source for coarse aggregate. MnDOT Spec 3137.2.B
- C. The source of fine and coarse aggregates shall be one currently approved by the Minnesota Department of Transportation.
- D. Deformed tie bars are required to be epoxy coated.

PART 3 - EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

- A. Provide copies of batch tickets for concrete mix at the time of material delivery to site.
- B. 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.
- C. The width of all driveways and aprons shall be established in the field by the project Engineer or Owner.
- D. 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. Control joints that are sawed shall be completed within 24 hours of placing the concrete. 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.
- E. 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.
- F. 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.
- G. The Contractor shall imprint the concrete curb at the locations of the utility service locations and in accordance with the plans.
- H. 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.
- I. Two coats of curing compound shall be applied, at different directions perpendicular to one another to ensure uniform, solid coverage on all exposed concrete surfaces, including the back of curbs and back and side edges of walks and driveways.
- J. No warranty is expressed or implied that all concrete work will be accessible for machine construction.
- K. Additional reinforcing bars shall be placed in the concrete pavement around manhole castings as shown in the plan detail.

3.2 FIELD QUALITY CONTROL

- A. Testing
 - 1. The Owner shall arrange for and pay all costs associated with various material tests throughout the construction to determine conformance with these specifications, including but not limited to:
 - (a) In accordance with the SALT Schedule of Materials Control.

- (b) Air and slump cone tests.
- (c) Beam and cylinder testing.
- B. All testing shall be performed by an independent testing laboratory approved by the Engineer.
- C. The Contractor's shall cooperate with the individuals conducting the testing operations.
- D. Smoothness testing
 - 1. A 4.0-foot straight edge or bull float with the capability of checking the deviation in any direction over the entire width of the fresh concrete shall be supplied by the Contractor during all concrete pavement installation. The Contractor shall check the pavement longitudinally by placing the straight edge in a wheel track or center of panel. The Contractor shall check the pavement where directed by the Engineer.
 - (a) The acceptable deviation tolerance shall be a 1/4-inch dip or hump as measured in 4-feet or 1/2-inch dip or hump as measured in 10-feet.
 - (b) A 1/2-inch deviation in less than 8.0-feet shall be considered out of tolerance. There shall be no more than one 1/2-inch deviation in 25.0-feet.
 - (c) The Contractor may make corrections during placement while the concrete is still fresh. Otherwise, the Engineer may require corrective action after the concrete has cured. Dips shall be corrected by full panel replacement. Humps may be corrected by grinding as directed by the Engineer.
- E. 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****

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SECTION 02775 - WALKS - CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. This work consists of constructing concrete 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. Bid Items have been provided for Concrete Walk. Separate bid items have been provided for each thickness to be constructed. All Concrete Walk shall be measured and paid for by the thickness shown on the Drawings. Measurement shall be per Square Feet (SF) of walk constructed as specified, complete in place.
 - (a) Payment shall include concrete materials, final base preparation, placement of materials, finishing, curing, protection of work, and backfilling, complete in place.
 - (b) Excavation shall be measured and compensated per separately Section 02330.
 - (c) Aggregate base shall be measured and compensated separately per Section 02720.
 - (d) Integral curb required with Concrete Walk shall NOT be included in the payment for Concrete Walk. Any such integral curb required shall be measured and paid for separately as Concrete Curb Design V.
 - (e) The Bid Item for 6" Concrete Walk shall also be used for pedestrian ramp construction.
 - (1) The Concrete Walk area measured at pedestrian ramps shall include the area under the truncated dome panel.
 - (2) Measurement of ramp shall not include adjacent concrete curb and gutter. Those quantities shall be measured and compensated separately.
2. A Bid Item for Concrete Step Design Special has been provided on the Bid Form. Measurement shall be on the Square Foot (SF) basis of surface area of each step tread actually constructed in accordance with the Detail shown on the Drawings. Measurement for payment shall include tread only.
 - (a) Payment shall include concrete materials, final base preparation, placement of materials, reinforcement, finishing, curing, protection, and backfilling.
 - (b) Excavation shall be measured and compensated per separately Section 02330.
 - (c) Aggregate base shall be measured and compensated separately per Section 02720.
 - (d) Cheek walls adjacent to steps shall NOT be included in the payment for steps. Cheek walls shall be measured and paid for separately under the bid item for Concrete Curb Design V.
 - (e) Railings shall NOT be included in the payment for steps. Railings shall be measured and paid for separately under the bid item for Pipe Railing.
 - (f) Since the extent of concrete step 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.
3. A Bid Item has been provided for the Truncated Domes, which is part of the concrete pedestrian curb ramp. Measurement shall be on the basis of Square Feet (SF) of Truncated Dome actually constructed, complete and in place.
 - (a) Payment shall include truncated panel materials, placement of truncated panels, joint sealing material, and protection of truncated panels during construction.
4. A Bid Item has been provided for the Pipe Railing. Measurement shall be total length (LF) of railing installed along the centerline of the pipe and fittings. Shall include all vertical pipe and horizontal pipe.

(a) Payment shall include all material (pipe, fittings, anchor bolts, nuts, etc.), equipment and labor required to install the railing in place.

5. Salvage & Install Metal Railing bid item is covered in section 02220.

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. Cold weather concrete protection methods and materials required.

2. Provide adequate barricades and personnel to protect fresh concrete from pedestrian traffic and graffiti.

3. Provide temporary walk ways spanning fresh concrete where required to maintain access into building entrances.

4. Use of high early strength concrete.

1.3 SPECIFICATIONS REFERENCES

A. MnDOT 2402, 2471, 2521, 2531 and 3137 shall apply to the work under this section, except as modified herein

B. MnDOT Standard Plates.

C. City of Two Harbors Standards

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

1.4 SUBMITTALS

A. Two copies 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.

B. Federal, state and/or state-aid funded project: The Contractor shall submit the Concrete Information Form to the Project Engineer four weeks prior to construction. The concrete Information Form is available at: <http://www.dot.state.mn.us/materials/concretemixdesigns.html>.

The Project Engineer will submit the forms to the MnDOT Concrete Office which will review the concrete mix design.

PART 2 - PRODUCTS

2.1 MATERIALS

A. CONCRETE MIX DESIGNATIONS

1. A minimum of fifty percent of the coarse aggregate shall be Class A material as specified in MnDOT 3137.

2. The coarse aggregate designation shall be ASTM #67* from MnDOT Table 3137-4.

3. Class R aggregate shall not be used as a source for coarse aggregate.

4. Sidewalk, Pedestrian Ramps and Steps: Mix No. 3F52

5. The foundation materials shall be in accordance with the plans.

6. No modification to reference specification.

2.2 TRUNCATED DOME SYSTEMS FOR PEDESTRIAN CURB RAMPS

A. Follow the public rights-of-way accessibility guidelines (PROWAG).

B. Consist of truncated domes aligned in a square or radial grid pattern.

- C. Contrast visually with adjacent gutter, roadway or walkway; either a light-on-dark or dark-on-light contrast may be provided on the full ramp surface, excluding the flared sides.
- D. Be on the MnDOT Approved/Qualified Product List which is available at:
<http://www.dot.state.mn.us/products/detectablewarningsurfaces/index.html>.
 - 1. No Stainless Steel ramps are allowed
 - 2. Truncated domes shall not be colored.
 - 3. Truncated domes shall be uncoated cast iron.

2.3 PIPE RAILING

- A. Pipe Railing shall conform to MnDOT Spec. 3362
- B. Railing Paint color: Black
 - 1. Railing shall be constructed per MnDOT standard plate 8400F. Prior to installation the railing shall be painted in accordance with the following:
 - (a) All metals shall be cleaned to SSPC-SP-6, commercial grade prior to painting.
 - (b) Apply the primer to a dry film thickness of not less than 4.0 mils.
 - (c) Apply the final coat to a dry film thickness of not less than 2.0 mils.

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****

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SECTION 02820 - CHAIN LINK FENCE AND GATES

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 chain link fence and gate 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. The Install Fence (Salvaged) shall be paid at the unit price bid per LINEAR FOOT (LF), furnished and installed complete including wire fabric, posts, bracing, fittings and any other materials or appurtenances required to complete the installation in accordance with the Plans and the requirements of this Specification.
 2. Temporary construction protective fencing at the school yard shall be incidental to construction phasing of the project, with no specific separate payment provided.
 - (a) Contractor shall provide temporary fencing along the school to maintain and provide protective separation and restrict access from school yard to construction work area, in the areas where the existing fence is removed.
 - (b) Minimum height of 5 foot with installation to occur prior to salvage removal of existing fencing.
- 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 fencing items. 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 2557 shall apply to fencing except as modified herein.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. SALVAGED EXISTING FENCE
1. Salvaged posts, rails, bracing, fabric, and accessories.
- B. TEMPORARY FENCING
1. Chain link fabric shall meet the requirements of ASTM A392 for the following:
 - (a) Residential:
 - (1) 2¼-inch mesh
 - (2) 12-gauge wire
 - (3) Class 1 zinc coating (1.2 oz/sq. ft min.)
 2. Posts shall be round steel pipe (Schedule 40) as specified in ASTM F1043.

3. Top rail, bracing and accessories as need to maintain height, fence tension, structural integrity for the duration needed.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install temporary fencing to protect work area from school yard when existing fencing is salvaged.
- B. Corner, brace and gate posts shall be set vertically plumb as indicated on the plans. Corner posts shall be installed where the fence deflects 30 degrees or more.
- C. All line posts shall be installed vertically plumb and spaced uniformly and intervals not exceeding 10.0-feet. Intermediate line posts shall be air driven to a depth of four feet unless otherwise indicated on the plans.
- D. The fence shall be so erected that the bottom of the fencing will follow the contour of the grade surface with 1.0-inch maximum clearance. The gate shall align with the top of the fence and shall have a 3.0-inch maximum clearance at the bottom.
- E. Bracing shall be provided at all end, gate and corner posts, the latter in both directions. Horizontal brace rails shall be set midway between top rail and ground running from the corner, end or gate post to first line post. Diagonal tension members shall connect tautly between posts below horizontal braces.
- F. The chain-link fabric shall be fastened on the side of the posts as shown or as designated by the Engineer. The fabric shall be stretched and securely fastened to the posts, and, between the posts, the top and bottom edges of the fabric shall be fastened to the top rail and tension wire, respectively. The tension wires shall be stretched tight with turnbuckles at the end and corner posts. The bottom tension wire shall be installed on a straight grade between posts.
- G. The fabric shall be fastened to the end, corner and gateposts with stretcher bars and stretcher bar bands spaced approximately 14.0-inches on line posts and at approximately 18.0-inches on tension wires.
- H. Any galvanized coating damaged during construction of the fencing shall be repaired by application of molten Galvo-Weld, Galvinox or equal.

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

SECTION 02830 - MODULAR BLOCK RETAINING WALL SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. The work under this section of these specifications includes, or is incidental to, the design, furnishing, and constructing a modular block retaining wall as indicated on the drawings or as specified herein. The work shall include the footings, drainage, the modular block, anchoring devices, railings, specified accessories and related items of construction.
- B. The retaining wall shall be constructed in the location and configuration as shown on the plans; however, the Engineer reserves the right to alter this alignment to improve constructability and/or aesthetics.
- C. Geosynthetic wall reinforcement (if required) shall be designed as part of the modular block retaining wall system and shall be certified by the designer of the retaining wall system that it meets the necessary strength and durability criteria for the application.

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 of the Modular Block Retaining Wall shall be by the SQUARE FEET (SF) of wall installed as measured from the bottom of the block at the footing base to the top of the wall cap for the wall length. Payment at the contract price shall be compensation in full for all costs of furnishing and installing a complete wall system.
- 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 retaining wall items. Such items of work include but are not limited to:
 - 1. Furnishing and installing appropriate sub-drainage, including piping and granular backfill, include in the price bid for retaining wall.
 - 2. Excavation below and behind wall, furnishing and installing granular footing material, drainage aggregate, and granular backfill, include in the price bid for retaining wall.
 - 3. Furnishing and installing a geosynthetic wall reinforcement system or approved other anchoring system, include in the price bid for retaining wall.
 - 4. Disposal of any excess or unsuitable excavated material, include in the price bid for retaining wall.
 - 5. Protecting existing improvements from damage, include in the price bid for retaining wall.
 - 6. Gradation and compaction testing to meet requirements of source and field quality control, include in the price bid for retaining wall.
 - 7. Preparation, furnishing, and applying surface sealer as specified herein, include in the price bid for retaining wall.
 - 8. Providing color samples and furnishing the selected block in any color in the manufacturer's standard color palette, include in the price bid for retaining wall.

1.3 SPECIFICATION REFERENCE

- A. MnDOT Standard Plans 5-297.640, 5-297.641, 5-297.643, 5-297.644, and 5-297.645 as applicable.
- B. In addition, all work and equipment shall conform to the most current applicable OSHA standards.
- C. Unless otherwise noted, the provisions in this Section are in addition to the referenced specifications.

1.4 SUBMITTAL

- A. Product Data: Material description and installation instructions for each manufactured product specified.

- B. Shop Drawings: Retaining wall system design, including wall elevation views, geosynthetic reinforcement layout, pertinent details, and drainage provisions. The shop drawings shall be signed by a professional engineer licensed in the state in which the wall will be installed.
- C. Design:
 - 1. The successful bidder shall submit detailed design drawings and computations for the construction of the modular block retaining wall. The drawings and computations shall include, but not be limited to, footing / foundation drawings, wall details, anchoring requirements, compaction requirements, subdrainage details, railing details, re-bar schedules and other drawings and details that are appropriate for the successful completion of the project.
 - 2. Included shall be a typical section detailing excavation limits, geotextile locations, block embedment, leveling pad dimensions, backfill, etc. Include as many sections and other views necessary for the construction and inspection of the wall. The information on embedment, geotextile locations, and geotextile lengths as they relate to wall heights may be shown in tabular form. Also included shall be pertinent information on the individual blocks, the geotextile material and compaction requirements.
 - 3. All drawings submitted by the Contractor shall be certified and signed by a Professional Engineer licensed in the state in which the wall will be installed. Each plan sheet shall clearly identify the name of the responsible engineering firm and the name of the person certifying the plan.
 - 4. MnDOT Standards Plans 5-297.640, 5-297.641, 5-297.643, 5-297.644 and 5-297.645 as applicable.
 - 4. Analysis of global stability must be addressed and incorporated into the design for installations involving multiple retaining walls.
- D. Samples
 - 1. Furnish samples showing standard color selections for the block type being supplied.
 - 2. Furnish one unit in the color and face pattern specified, if requested.
 - 3. Furnish 12.0-inch square or larger piece of the geosynthetic reinforcement specified.
- E. Test Reports: Independent laboratory reports stating moisture absorption and compressive strength properties of the concrete retaining wall units meet the Project Specifications when tested in accordance with ASTM C140, Sections 6, 8 and 9.

PART 2 - PRODUCTS

2.1 MATERIALS

A. CONCRETE RETAINING WALL UNITS:

- 1. Physical Requirements:
 - (a) The units shall conform to ASTM C1372, except that:
 - (1) The minimum compressive strength requirements shall be 38 Mpa (5500 psi) for any individual unit and 40 Mpa (5800 psi) for the average of 3 units.
 - (2) The freeze/thaw durability of wall units tested in accordance with ASTM C 1262 in a 3 percent saline solution shall be the minimum of the following:
 - 1. The weight loss of each of five test specimens at the conclusion of 90 cycles shall not exceed 1 percent of its initial weight; or
 - 2. The weight loss of 4 out of 5 test specimens at the conclusion of 100 cycles shall not exceed 1.5 percent of its initial weight, with the maximum allowable weight loss for the 5th specimen to not exceed 10 percent.
 - (3) The freeze/thaw durability of cap units test tested in accordance with ASTM C 1262 in a 3 percent saline solution shall be the minimum of the following:
 - 1. The weight loss of each of five test specimens at the conclusion of 40 cycles shall not exceed 1 percent of its initial weight; or

2. The weight loss of 4 out of 5 test specimens at the conclusion of 50 cycles shall not exceed 1.5 percent of its initial weight, with the maximum allowable weight loss for the 5th specimen not to exceed 10 percent.
- (4) Cap units must meet the requirements of (a) and (c) and have a top surface sloped at minimum of 1 mm fall per 10 mm run (1.0-inch fall per 10.0-inches run) front to back or be crowned at the center.
- (5) ASTM C 1262 test results shall be recorded and reported in 10 cycle intervals
- (6) It is the intention of this testing that 100 percent of the wall units and cap units meet the weight loss requirements for (b1) and (c1) respectively, or that a minimum of 80 percent of the wall units and cap units tested meet the weight loss requirements for (b2) and (c2) respectively. If a manufacturer chooses to increase the sample size tested beyond the 5 units required for each block type, these percentages will still apply to the sample size chosen (i.e. if a sample size of 7 blocks is tested a minimum of 6 must meet the weight loss requirement of (b2) or (c2), if a sample size of 10 blocks is tested a minimum of 8 must meet the weight loss requirement).
- (7) The minimum required sampling rate for laboratory testing is one sample set per 10,000 units or fraction thereof, with a minimum of one sample per product type per contract. Sample size = 5 whole units per block type. Wall units and cap units are considered separate block types.
- (8) Sampling and testing shall conform to ASTM C 140, except that: Section 6.2.4 shall be deleted and replaced with:

“The specimens shall be coupons cut from a finished side or back shell of each unit and sawn to remove any face shell projections. The coupon size shall have a height to thickness ratio of 2 to 1 before capping and a length to thickness ratio of 4 to 1. The coupon shall be cut from the unit such that the coupon height dimension is in the same direction as the unit height dimension. Compressive testing of full-size units will not be permitted. The compressive strength of the coupon shall be assumed to represent the net area compressive strength of the whole unit.”
- (9) Cap units and wall units shall be sampled and tested as separate block types.
2. Unit Face Area: 1.0-square feet.
3. Color: Selected by the Owner from manufacturer's full range of standard colors.
4. Face Pattern Geometry: Beveled.
5. Texture: Split Rock Face.
6. Batter: 1V:8H
7. Acceptable Products:
 - (a) Diamond Pro as manufactured by Anchor Block Company.
 - (b) Classic 8 as manufactured by Rockwood Retaining Walls.
 - (c) Square Foot as manufactured by Versa-Lock Retaining Walls.
 - (d) Standard Unit as manufactured by Keystone Retaining Walls

B. SURFACE SEALER

1. Surface sealers shall be a type listed on the MnDOT Approved/Qualified Products list for segmental masonry wall sealants. The list is available on the MnDOT website at: <http://www.dot.state.mn.us/products/index.html>.

C. GEOSYNTHETIC WALL REINFORCEMENT

1. Polyester fiber geogrid or geotextile, or polypropylene woven geotextile, as shown on the plan or as recommended by the retaining wall block manufacturer.

D. SUB-SURFACE DRAINS

1. Perforated PVC drain pipe, SDR35 (ASTM D3034)
2. Perforated PVC drain pipe, SDR35 (ASTM D3034)
3. Perforated corrugated polyethylene drainage tubing, PE (ASTM D3350)

E. GRANULAR MATERIALS

1. The drainage aggregate shall conform to the requirements of MnDOT 3149 for coarse filter aggregate.
2. The granular backfill shall be select granular borrow conforming to MnDOT Spec 3149 modified as follows:
 - (a) Pit-run or crusher-run material that is graded from coarse to fine such that 100 percent of the material must pass the 2.0-inch sieve and that the ratio of the proportion passing the #200 sieve divided by the portion passing the 1.0-inch sieve (#200/1.0-inch ratio) may not exceed 10 percent by mass.

F. CONSTRUCTION ADHESIVE

1. Exterior grade adhesive as recommended by the retaining wall unit manufacturer or where shown on the plans.

2.2 SOURCE QUALITY CONTROL

- A. Sampling and testing shall be performed by the modular block supplier in accordance with ASTM C1372

PART 3 - EXECUTION

3.1 RETAINING WALL ERECTION

- A. General: Erect units in accordance with manufacturer's instructions and recommendations, and as specified herein.
- B. Place first course of concrete wall units on the prepared base material. Check units for level and alignment. Maintain the same elevation at the top of each unit within each section of the base course.
- C. Ensure that foundation units are in full contact with natural or compacted soil base.
- D. Place concrete wall units side-by-side for full length of wall alignment. Alignment may be done by using a string line measured from the back of the block. Gaps are not allowed between the foundation concrete wall units.
- E. Place drainage aggregate (12.0-inches, minimum unless otherwise shown on the drawings) between, and directly behind the concrete wall units. Fill voids in retaining wall units with drainage aggregate. Provide a drainage zone behind the wall units to within 9.0-inches of the final grade. Cap the backfill and drainage aggregate zone with 9.0-inches of impervious material.
- F. Install drainage pipe at the lowest elevation possible, to maintain gravity flow of water to outside of the reinforced zone. Slope the main collection drainage pipe, located just behind the concrete retaining wall units, 2 percent (minimum) to provide gravity flow to the daylighted areas. Daylight the main collection drainage pipe through the face of the wall, and/or to an appropriate location away from the wall system at each low point or at 50.0-foot (maximum) intervals along the wall. Alternately, the drainage pipe can be connected to a storm sewer system at 50.0-foot (maximum) intervals.
- G. Remove excess fill from top of units and install next course. Ensure drainage aggregate and backfill are compacted before installation of next course.
- H. Check each course for level and alignment. Adjust units as necessary to maintain level and alignment prior to proceeding with each additional course.
- I. Install each succeeding course. Backfill as each course is completed. Pull the units forward until the locating surface of the unit contacts the locating surface of the units in the preceding course. Interlock wall

segments that meet at corners by overlapping successive courses. Attach concrete retaining wall units at exterior corners with adhesive specified.

- J. Install geosynthetic reinforcement in accordance with geosynthetic manufacturer's recommendations and the shop drawings.
 - 1. Orient geosynthetic reinforcement with the highest strength axis perpendicular to the wall face.
 - 2. Prior to geosynthetic reinforcement placement, place the backfill and compact to the elevation of the top of the wall units at the elevation of the geosynthetic reinforcement.
 - 3. Place geosynthetic reinforcement at the elevations and to the lengths shown on the drawings.
 - 4. Lay geosynthetic reinforcement horizontally on top of the concrete retaining wall units and the compacted backfill soils. Place the geosynthetic reinforcement within 1.0-inch of the face of the concrete retaining wall units. Place the next course of concrete retaining wall units on top of the geosynthetic reinforcement.
 - 5. The geosynthetic reinforcement shall be in tension and free from wrinkles prior to placement of the backfill soils. Pull geosynthetic reinforcement hand-taut and secure in place with staples, stakes, or by hand-tensioning until the geosynthetic reinforcement is covered by 6-inches of loose fill.
 - 6. The geosynthetic reinforcements shall be continuous throughout their embedment lengths. Splices in the geosynthetic reinforcement strength direction are not allowed.
 - 7. Do not operate tracked construction equipment directly on the geosynthetic reinforcement.
 - 8. At least 6.0-inches of compacted backfill soil is required prior to operation of tracked vehicles over the geosynthetic reinforcement. Keep turning of tracked construction equipment to a minimum.
 - 9. Rubber-tired equipment may pass over the geosynthetic reinforcement at speeds of less than 5 miles per hour. Turning of rubber-tired equipment is not allowed on the geosynthetic reinforcement.

3.2 BACKFILL PLACEMENT

- A. Unless otherwise shown on the plans, backfill beyond the drainage aggregate within reinforcement zone shall be granular backfill as specified herein.
- B. Place reinforced backfill, spread and compact in a manner that will minimize slack in the reinforcement.
- C. Place fill within the reinforced zone and compact in lifts not exceeding 6.0 to 8.0-inches (loose thickness) where hand-operated compaction equipment is used, and not exceeding 12.0-inches (loose thickness) where heavy, self-propelled compaction equipment is used.
- D. Only lightweight hand-operated compaction equipment is allowed within 4.0-feet of the back of the retaining wall units. If the specified compaction cannot be achieved within 4.0-feet of the back of the retaining wall units, replace the reinforced soil in this zone with drainage aggregate material.
- E. Compaction testing shall be done in accordance with ASTM D1556 or ASTM D2922.
- F. Minimum Compaction Requirements for Fill Placed in the Reinforced Zone
 - 1. The minimum compaction requirement shall be determined by the project geotechnical engineer testing the compaction. At no time shall the soil compaction requirements be less than 95 percent of the soil's standard Proctor maximum dry density (ASTM D698) [modified Proctor maximum dry density (ASTM D1557)] for the entire wall height
 - 2. Moisture Content: Within 2 percentage points of the optimum moisture content for all wall heights.
 - 3. These specifications may be changed based on recommendations by the Project geotechnical engineer.
- G. At the end of each day's operation, slope the last level of compacted backfill away from the interior (concealed) face of the wall to direct surface water runoff away from the wall face.
- H. The Contractor is responsible for ensuring that the finished site drainage is directed away from the retaining wall system.

- I. In addition, the Contractor is responsible for ensuring that surface water runoff from adjacent construction areas is not allowed to enter the retaining wall area of the construction site.

3.3 CAP UNIT INSTALLATION

- A. Apply adhesive to the top surface of the unit below and place the cap unit into desired position.
- B. Cut cap units as necessary to obtain the proper fit.
- C. Backfill and compact to top of cap unit.

3.4 SITE CONSTRUCTION TOLERANCES

- A. Vertical Alignment: Plus or minus 1.0-inch over any 10.0-foot distance, with a maximum differential of 2.0-inches over the length of the wall.
- B. Horizontal Location Control From Plan
 - 1. Straight Lines: Plus or minus 1.0-inch over any 10.0-foot distance.
 - 2. Corner and Radius Locations: Plus or minus 12.0-inches from theoretical location shown on plan.
 - 3. Curves and Serpentine Radii: Plus or minus 12.0-inches from theoretical location shown on plan.
- C. Immediate Post Construction Wall Batter: Within 2 degrees of the design batter, negative batter unacceptable.
- D. Bulging: Plus or minus 1¼-inches over any 10.0-foot distance.
- E. Maximum horizontal gap between erected blocks: ½-inch

3.5 ADJUSTING AND CLEANING

- A. Replace damaged units with new units as the work progresses.
- B. Remove debris caused by wall construction and leave adjacent paved areas broom clean.
- C. All work shall be done in accordance with the approved drawings.

3.6 SEALER

- A. Segmental masonry retaining wall surface sealing shall consist of preparation, furnishing and applying the surface sealer to the top, exposed front face, and backside of the upper three courses of all walls.
- B. Due to the potentially hazardous ingredients contained in sealer formulations extreme care must be exercised in their handling and use, and the manufacturer's recommendations shall be closely followed.
- C. The Contractor shall comply with the manufacturer's written instructions for preparing, handling and applying the surface sealer.
- D. The surface to be treated shall receive a light waterblast to the extent that the surface is clean and free of oils.
- E. Before the surface sealer is applied the surface to be sealed shall be dry and free of all dust, debris, and frost.
- F. Surface sealers shall be applied at the heaviest application rate specified by the manufacturer.

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

SECTION 02890 - TRAFFIC SIGNS

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. Payment for Install Sign shall be at the unit price bid per EACH (EA) and shall be full compensation for all costs for installing the project signs complete, in place as shown on the Drawings or as directed by the Engineer and specified herein including posts & assemblies. This bid item is intended for installation of permanent signs only.
 2. Sign Panels Type C shall be paid at the unit price bid per SQUARE FOOT (SF). The amount bid shall be full compensation for furnishing the signs as shown on the Drawings or as directed by the Engineer and specified herein. Installation for these sign panels shall be paid separately under the Install Sign bid item.
 3. Sign Type Special shall be paid at the unit price bid per SQUARE FOOT (SF). The amount bid shall be full compensation for furnishing the signs as shown on the Drawings or as directed by the Engineer and specified herein, including temporary placement and/or relocation of signs as necessary during the course of the Project. This bid item is intended for business and access signage during the Project as shown on the Traffic Control Plan in the Drawings or as otherwise directed by the Engineer.
- 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. Where posts must be placed in concrete or bituminous surfacing. The Contractor shall core the area without damaging the remainder of the surface. Furnishing and installing a PVC tube at least four inches in for the post. The area shall then be patched with materials similar to surrounding pavement.
 2. No exception to the referenced specification is made.

1.3 SPECIFICATION REFERENCES

- A. MnDOT 2564 - Traffic Signs and Devices.
- B. MnDOT 3352 - Signs, Delineators and Markers.
- C. MnDOT 3401 - Flanged Channel Sign Posts.
- D. Current "Minnesota Manual for Uniform Traffic Control Devices" - <http://www.dot.state.mn.us/trafficeng/publ/mutcd/index.html>
- E. 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 SIGN PANELS

- A. Sign Panels Type C shall comply with ASTM Type IV High Intensity Prismatic reflective sheeting unless otherwise noted.

PART 3 - EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

- A. The lower portion of the post shall be air-driven into the ground. Where posts must be placed in concrete or bituminous, the Contractor shall core the area without damaging the remainder of the surface. At core location, a PVC tube at least four inches in diameter shall be inserted and the post air driven from that point. The area shall then be patched with materials similar to surrounding pavement.
- B. The Contractor shall construct the posts and signs at the locations indicated on the Drawings and shall verify all sign locations with the Engineer prior to installation.
- C. Street name signs shall furnished and installed separately by others and are not part of the Work for this Project.

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

SECTION 02920 - TURF RESTORATION

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.

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 and payments for turf establishment items furnished and installed as specified on the plans and in the Schedule of Unit Price bid per item.
 - (a) Common Topsoil Borrow
 - (b) Compost Material Grade 2 or 3
 - (c) Fertilizer Type 3
 - (d) Sodding Type Lawn
 - (e) Seeding
 - (f) Seed Mixtures
 - (g) Hydraulic Bonded Fiber Mulch (BFM)
 - 2. Payment for Sodding, Seeding, Seed, Fertilizer & Hydromulch shall be 80% upon installation of the materials. The remaining 20% shall be made upon final acceptance of seeding as defined in 3.1.B.5
 - 3. A Bid Item has been provided for Water (Irrigation Turf Establishment) specifically for turf establishment purposes only. Measurement shall be per 1,000 GALLONS (MGAL), to be utilized for turf establishment after seeding and sodding installation operations to assist in establishment and maintenance of turf vegetation until accepted or directed by the Engineer.
- 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. Soil Bed 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.
 - 5. Control and prevent the spread of weeds. Weed control spraying with general herbicide as recommended by contractor erosion & turf supervisor.
 - 6. Temporary seeding may be necessary during construction in erosion sensitive areas based upon Contractors methods. The Contractor shall do temporary seeding work as specified herein or as directed by the Engineer.

1.3 SPECIFICATION REFERENCES

- A. MnDOT 2574 - Soil Preparation
- B. MnDOT 2575 - Establishing Vegetation and Controlling Erosion

- C. MnDOT 3876 - Seed
- D. MnDOT 3877 - Topsoil
- E. MnDOT 3878 - Sod
- F. MnDOT 3881 - Fertilizer
- G. MnDOT 3882 - Mulch Material
- H. MnDOT 3884 - Hydraulic Erosion Control Products
- I. MnDOT 3885 - Rolled Erosion Control Products
- J. MnDOT 3890 - Compost
- K. 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. Seeding

1. The seed mixtures to be used are shown on the plans.
 - (a) Unless otherwise specified on the plans, all application rates for MnDOT mixes, except temporary seed, are 200 percent the specified rate.
2. 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.
3. Source identified (Yellow tag) seed through the Minnesota Crop Improvement Association (MCIA) unless otherwise approved by the Engineer.
4. All seed shall be supplied as pure-live seed (PLS).
5. All seed and seed mixes shall conform to State seed requirements for noxious weed content.
6. 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.

D. Fertilizer

1. Fertilizer shall be Type 3

E. Compost

1. Compost shall be Grade 2 or 3
2. Compost shall be applied at a depth of 1/2" to 1" top dressing

F. Hydraulic Matrix

1. Hydraulic Matrix shall be MnDOT Type Bonded Fiber Matrix (BFM) or Organic Fiber Matrix (OFM)

- G. Erosion Control
 - 1. Blanket shall be Category 3N
 - 2. Type 1 mulch shall consist of clean straw with no pasture hay.
- H. Water (Irrigation Turf Establishment)
 - 1. Not salty or brackish
 - 2. Clean and free of injurious quantities of deleterious substances such as oil, acid, alkali, and organic matter.
 - 3. Approved for plant irrigation applications

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.
- 2. The topsoil shall be shaped to the approximate contour of the finished surface, with a minimum depth of 4.0-inches, unless otherwise shown on the plan. All construction debris, rocks and trash shall be removed from the area prior to seeding or sodding.
- 3. The Contractor shall be responsible for providing water and maintenance for a period of 45 calendar days, or until final acceptance by the Owner, to firmly establish the seed or sod.
 - (a) The term maintenance shall include mowing, weed control and watering, as necessary.
 - (b) 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.
 - (c) A contract deduction shall 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 shall be extended to include the first 30 calendar days after the beginning of the growing season. The beginning of growing season shall be defined as bud burst (Local Oak leaves the size of squirrel ears) in the spring.
- 5. During the maintenance period the Contractor shall inspect and document progress of turf establishment a minimum of once every 7 calendar days. Reporting documentation on turf inspection shall be submitted by Contractor weekly to Engineer. Any deficiencies noted during inspection shall be addressed within 72 hours of reporting.

B. SEEDING REQUIREMENTS

- 1. Turf establishment by seeding shall be done utilizing the various combinations of seed mixtures, fertilizing and mulching at disturbed areas as shown on the plans.
 - (a) 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 1/2-inch diameter.
 - (b) Placement of topsoil.
 - (c) Apply fertilizer within 24 hours of seeding.
 - (d) Top dress with 1/2" to 1" thickness of compost material.
 - (e) First application of Seed spread evenly by hand operated mechanical broadcast spreader at 100% of the MnDOT recommended application rate.
 - (f) Incorporate seed into the soil medium by lightly raking.
 - (g) Second application of Seed spread by broadcasting at 100% of the MnDOT recommended application rate, unless otherwise approved by the Owner.

- (h) Incorporate seed by lightly raking or turf roller to set seed into the soil medium.
 - (i) Apply hydraulic mulch or blanket as identified on the plans.
 - (j) Apply temporary irrigation water as needed to maintain soil dampness to promote germination and growth.
 - (k) Address areas where growth is deficient within 48 hours of notification by the Engineer.
 - (l) Erosion & Turf Supervisor provide weekly progress reports on turf establishment until project turf establishment has been accepted by the Engineer.
- 2. 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.
 - 3. Dormant seeding and snow seeding may be utilized in accordance with the referenced specification and technical memorandum, provided the final acceptance standards are met.
 - 4. 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 shall be incidental to the unit price bid for the seed.
 - 5. Final acceptance of seeding shall be based on an established growth of 5.0-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 (3 mm) diameter or heavier steel wire having a span width of 1.0-inch (25 mm) and a length of 8.0-inches (200 mm) from top to bottom, after bending. No staple shall extend more than ¼" above the ground soil surface.
 - 5. All re-work necessary to repair imperfections in sod placement shall be made at the Contractor's expense.

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

APPENDIX A

SOIL INVESTIGATION

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Geotechnical Evaluation Report

Lake County CSAH 30, 35 and City of Two Harbors
2021 Street and Utility Improvements
Two Harbors, 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.



Joseph C. Butler, PE
Senior Engineer
License Number: 47600
April 21, 2020



Project B2002541

Braun Intertec Corporation

April 21, 2020

Project B2002541

Joseph Pelawa, PE
Bolton & Menk, Inc.
4960 Miller Trunk Hwy #350
Duluth, MN 55811

Re: Geotechnical Evaluation
Lake County CSAH 30, 35 and City of Two Harbors
2021 Street and Utility Improvements
Two Harbors, Minnesota

Dear Mr. Pelawa:

We are pleased to present this Geotechnical Evaluation Report for the Lake County CSAH 30, 35 and City of Two Harbors 2021 street and utility improvement project.

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 Kyle Warmuth at 218.624.4967 (kwarmuth@braunintertec.com).

Sincerely,

BRAUN INTERTEC CORPORATION



Kyle P. Warmuth, EIT
Staff Engineer



Joseph C. Butler, PE
Business Unit Manager / Senior Engineer

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Appendix

Boring Location Sketch

Log of Boring Sheets ST-01 through ST-06

Descriptive Terminology of Soil

A. Introduction

A.1. Project Description

Lake County and the City of Two Harbors are planning to reconstruct County State Aid Highway 30 and 35 as well as several local roadways in Two Harbors, Minnesota. The project area is shown in Figure 1 below.

The reconstruction will include replacement of the urban pavement section with concrete curb and gutter and bituminous pavements. Concrete pavement and utility improvements are also being considered.

A.2. Purpose

The purpose of our geotechnical evaluation will be to characterize subsurface geologic conditions at selected exploration locations and evaluate their impact on the design and construction of the CSAH 35 roadway reconstruction.

A.3. Background Information and Reference Documents

To facilitate our evaluation, we were provided with or reviewed the following information or documents:

- Preliminary site plan, prepared by Bolton & Menk, Inc., undated.
- Minnesota Geologic Map, “Geologic Map of Minnesota, Quaternary Geology”, prepared by Hobbes and Goebel, dated 1982.
- Aerial photos from Google Earth©

A.4. Site Conditions

The existing alignment is currently a bituminous surface roadway with an urban section along 8th Street and along the Avenues East of 8th Street. It is apparent that the original pavement section consisted of concrete. Bituminous was placed over the concrete between the curbs. The roadway is generally in poor condition with underlying concrete pavements exposed in areas. West of 8th Street, the Avenues are aggregate surfaced. Figure 1 below outlines the project area.

Figure 1. Site Layout

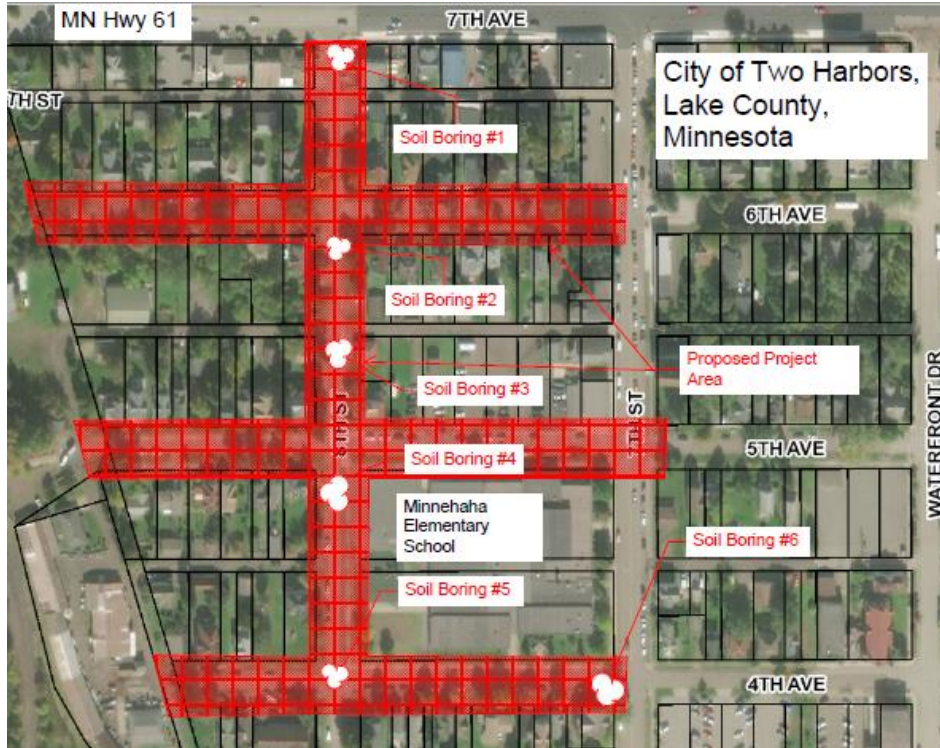


Figure provided by Bolton & Menk, Inc. undated.

A.5. Scope of Services

Our scope of services for this project was submitted as a Proposal QTB113371 to Bolton & Menk, Inc., dated January 3, 2020 and subsequently authorized on March 11, 2020. Tasks performed in accordance with our authorized scope of services included:

- Performing a reconnaissance of the site to evaluate equipment access to exploration locations.
- Clearing exploration locations of underground utilities.
- Performing six (6) penetration test borings to a nominal depth of 14.5 feet.
- Performing laboratory moisture and gradation tests on selected penetration test samples.

- Preparing this report containing a boring location sketch, exploration logs, a summary of the geologic materials encountered, results of laboratory tests, and recommendations for the design of pavement and utilities.

Exploration locations and surface elevations were staked and surveyed by Bolton & Menk, Inc.

B. Results

B.1. Exploration Logs

B.1.a. Log of Boring Sheets

Log of Boring sheets for our penetration test borings are included in the Appendix. The logs identify and describe the geologic materials that were penetrated, and present the results of penetration resistance and other in-situ tests performed within them, laboratory tests performed on penetration test samples retrieved from them, and groundwater measurements.

Strata boundaries were inferred from changes in the penetration test samples and the auger cuttings. Because sampling was not performed continuously, the strata boundary depths are only approximate. The boundary depths likely vary away from the boring locations, and the boundaries themselves may also occur as gradual rather than abrupt transitions.

B.1.b. Geologic Origins

Geologic origins assigned to the materials shown on the logs and referenced within this report were 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 and other in-situ 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.

B.2. Geologic Profile

B.2.a. Geologic Materials

Table 1 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 sheets in the Appendix include definitions of abbreviations used in Table 1.

Table 1. Subsurface Profile Summary*

Strata	Soil Type - ASTM Classification	Range of Penetration Resistances	Commentary and Details
Pavement section			<ul style="list-style-type: none"> ▪ Overall thickness ranges from 10 to 14 inches. ▪ Bituminous thickness 2 to 12 inches. ▪ Concrete thickness 6 to 8 inches. ▪ Apparent aggregate base was observe in two borings.
Fill	SM, SC-SM	5 to 46 BPF	<ul style="list-style-type: none"> ▪ Moisture condition generally dry to moist. ▪ When sampled, some fill was still in the frozen. ▪ Thicknesses at boring locations varied from 2 to 9 feet. ▪ Highly variable, soils intermixed. ▪ Possible cobbles and boulders. ▪ Glass and bituminous debris in boring ST-3 at a depth of 10 feet.
Lacustrine Deposits	CH	32 BPF	<ul style="list-style-type: none"> ▪ Moisture condition generally moist. ▪ Sampled frozen which affected the blow counts
Glacial deposits	SC-SM	3 to 9 BPF	<ul style="list-style-type: none"> ▪ Moisture condition generally moist. ▪ Variable amounts of gravel
	CL	4 to 32 BPF	

*Abbreviations defined in the attached Descriptive Terminology sheets.

We did not perform gradation analysis on the apparent aggregate base material encountered as part of the pavement section, in accordance with our scope of work. Therefore, we cannot conclusively determine if the encountered material satisfies a particular specification.

For simplicity in this report, we define existing fill to mean existing, uncontrolled or undocumented fill.

B.3. Groundwater

Groundwater was measured or estimated to be down approximately 13 feet in boring ST-04. Groundwater was not observed in the remaining borings. Given the cohesive nature of the geologic materials encountered, however, we suspect ground water to be perched within sand seam in the native clays or within the surficial fills. A hydrostatic groundwater table is not expected.

Seasonal and annual fluctuations of groundwater should also be anticipated.

B.4. Laboratory Test Results

The moisture content of the silty sand fill material varied from approximately 8 to 21 percent, indicating that the material was below to above of its probable optimum moisture content.

The moisture content of the silty clayey sand fill material varied from approximately 13 to 23 percent, indicating that the material was at or above of its probable optimum moisture content.

Our mechanical analyses indicated that the fill material contained 12 to 42 percent silt and clay by weight indicating that the fill soils ranged from a silty sand to a silty clayey sand.

C. Basis for Recommendations

C.1. Design Considerations

The geotechnical issues influencing design of the new pavement appear to be limited. The geologic materials present at anticipated structure subgrade elevations generally appear suitable for support of pavements and utilities.

Due to the frost-susceptible nature of the silt- and clay-rich soils present at anticipated exterior slab and pavement subgrade elevations, consideration should also be given to incorporating a granular subbase into the pavement sections. This will enhance subgrade drainage efforts and reduce the potential for pavement subgrades to become saturated and heave upon freezing; strength loss upon thawing will also be reduced.

We were directed to develop recommendations for pavement design and utilities. Those recommendations are presented below in Section D.

C.2. Construction Considerations

From a construction perspective, the project team should also be aware that:

- Excavations may encounter groundwater within seams of sandy soils or perched within the fill on top of the native clays. If groundwater is encountered, we anticipate dewatering can be achieved with sumps and pumps.
- The clayey soils were observe to be above their optimum moisture contents, therefore they will also need to be dried to facilitate compaction.
- Because there are no such resources on the site, sands or gravels will have to be imported to backfill the balance of deep excavations that can only be partially backfilled with clay, and facilitate drainage behind below-grade walls and below pavements.

D. Recommendations

D.1. Pavement and Exterior Slab Subgrade Preparation

We recommend the following steps for pavement and exterior slab subgrade preparation, understanding the site will have a grade change of 1 feet or less. Note that project planning may need to require additional subcuts to limit frost heave.

1. Strip unsuitable soils consisting of topsoil, organic soils, peat, vegetation, existing structures and pavements from the area, within 3 feet of the surface of the proposed pavement grade.
2. Have a geotechnical representative observe the excavated subgrade to evaluate if additional subgrade improvements are necessary.
3. Slope subgrade soils to areas of sand or drain tile to allow the removal of accumulating water.
4. Scarify, moisture condition and surface compact the subgrade with at least 3 passes of a large roller with a minimum drum diameter of 3 1/2 feet.

5. Place pavement engineered fill to grade and compact in accordance with Section D.2 to bottom of pavement and exterior slab section. See Section D.2 for additional considerations related to frost heave.
6. Proofroll the pavement or exterior slab subgrade as described in Section D.2.

To improve long-term pavement performance, we recommend incorporating a sand sub-base into the pavement section. Section D.2 provides recommended pavement design sections with and without the sand subbase. Note, we recommend sloping subgrade soils to promote drainage and removal of accumulated water.

D.1.a. Excavation Dewatering

We recommend removing groundwater from the excavations. Sumps and pumps can be considered for dewatering excavations at this site.

D.1.b. Selecting Excavation Backfill and Additional Required Fill

On-site soils free of organic soil and debris can be considered for reuse as backfill and fill. The clay soils at this site will be more difficult to compact if wet or allowed to become wet, or if spread and compacted over wet surfaces.

We recommend that granular subbase material for pavement support consist of sand having less than 7 percent of the particles by weight passing a #200 sieve. We anticipate that this material will need to be imported.

D.1.c. Placement and Compaction of Backfill and Fill

We recommend spreading engineered fill in loose lifts of approximately 8 to 12 inches thick. We recommend compacting engineered fill in accordance with the criteria presented below in Table 2.

Table 2. Compaction Recommendations Summary

Reference	Relative Compaction, percent (ASTM D698 – Standard Proctor)	Moisture Content Variance from Optimum, percentage points	
		< 12% Passing #200 Sieve (typically SP, SP-SM)	> 12% Passing #200 Sieve (typically CL, SC, ML, SM)
Within 3 feet of pavement subgrade	100	±3	-1 to +3
More than 3 feet below pavement subgrade	95	±3	±3
Below landscaped surfaces	90	±5	±4

The project documents should not allow the contractor to use frozen material as engineered fill or to place engineered fill on frozen material.

We recommend performing density tests in engineered fill to evaluate if the contractors are effectively compacting the soil and meeting project requirements.

D.2. Pavements

D.2.a. Subgrade Proofroll

Prior to placing aggregate base material, we recommend proofrolling pavement subgrades to determine if the subgrade materials are loose, soft or weak, and in need of further stabilization, compaction or subexcavation and recompaction or replacement. A second proofroll should be performed after the aggregate base material is in place, and prior to placing bituminous or concrete pavement.

D.2.b. Design Sections

We anticipate a 10-ton pavement section is desired. The Mn/DOT *Geotechnical and Pavement Manual* indicates that either the MnPAVE computer program or R-Value/ESAL charts be used for flex pavement design. We have used the R-Value/ESAL charts for this project.

We are providing a pavement section based on 4th Avenue Street traffic data. As indicated by the MnDOT Traffic Data Website, the Average Daily Traffic (ADT) for 4th Avenue was 710 in 2010. While the growth rate of the roadways was negative, we have conservatively assumed 2 percent growth for the proposed roadways. We have assumed an “Urban Road” traffic distribution from the MnDOT design

manual. Based on these values, the traffic distribution, we have used a design traffic loading for 4th Avenue of 117,000 Equivalent 18-kip Single Axle Loads (ESALs) over the 20-year pavement design life for our recommendations.

We recommend a lean clay subgrade be assumed for this project. Based on this subgrade (R-value of 10) and 117,000 ESALs, MnDOT Figure 5-3.6 “Bituminous Pavement Design Chart” indicates a minimum pavement section of 12.5 inches and 19.94 GE.

Based on discussions with Bolton and Menk personnel, we understand the project team plans to utilize the following pavement section: 4 inches of bituminous pavement over 8 inches of aggregate base material and a 12 inch sand material subbase layer.

Table 3 provides a recommended flexible pavement section based these support soils and traffic loads.

Table 3. Recommended Bituminous Pavement Section

Material (MNDOT Specification)	Thickness (inches)	Granular Equivalent
Bituminous (2360)	4	9
Aggregate Base (3138)	8	8
Granular Sub-base	12	6
Total Granular Equivalent Proposed Roadway		23

As noted in Table 5, the proposed pavement section exceeds the minimum required Granular Equivalent for an R-value of 10, and 117,000 ESAL's.

D.2.c. Materials and Compaction

We recommend specifying crushed aggregate base meeting the requirements of Minnesota Department of Transportation (MnDOT) Specification 3138 for Class 5. We recommend that the bituminous wear and base courses meet the requirements of Specifications 2360, Type SP. We recommend the aggregate gradations for the asphalt mixes meet Gradation B for the base course and Gradation B or A for the surface course. Gradation A contains a smaller aggregate size than Gradation B and will provide a surface with less visible aggregate which is desirable for some owners. We recommend the Performance Graded Asphalt cement be a PG 58-28. (If additional resistance to rutting, scuffing and dimpling is desired, we recommend utilizing a PG 64-28. If additional resistance to cold weather cracking is desirable, we recommend utilizing a PG 58-34.)

We recommend that the aggregate base be compacted to a minimum of 100 percent of its maximum standard Proctor dry density. We recommend that the bituminous pavement be compacted to at least 92 percent of the maximum theoretical Rice density.

We recommend specifying concrete for pavements that has a minimum 28-day compressive strength of 4,000 psi. We also recommend Type I cement meeting the requirements of ASTM C 150. We recommend specifying 5 to 7 percent entrained air for exposed concrete to provide resistance to freeze-thaw deterioration. We also recommend using a water/cement ratio of 0.45 or less for concrete exposed to deicers.

D.2.d. Subgrade Drainage

We recommend installing perforated drainpipes throughout pavement areas at low points and about catch basins. The drainpipes should be placed in small trenches extended at least 8 inches below the granular subbase layer – or aggregate base material where no subbase is present.

D.3. Frost Protection

D.3.a. General

All or some of the exterior slabs, as well as pavements, will be underlain with fat clay and silty sand, which are considered to be highly frost-susceptible. Such soils can retain moisture and heave upon freezing. In general, this characteristic is not an issue unless these soils become saturated due to surface runoff or infiltration or are excessively wet in-situ. Once frozen, unfavorable amounts of general and isolated heaving of the soils and the surface structures supported on them could develop. This type of heaving could impact design drainage patterns and the performance of exterior slabs and pavements. To address most of the heave related issues, we recommend that general site grades and grades for exterior surface features be set to direct surface drainage away from across paved areas and away from walkways to limit the potential for saturation of the subgrade and any subsequent heaving. General grades should also have enough “slope” to tolerate potential larger areas of heave which may not fully settle when thawed.

D.3.b. Exterior Slabs

Even small amounts of frost-related differential movement at walkway joints or cracks can create tripping hazards. Several subgrade improvement options can be explored to address this condition.

The most conservative and potentially most costly subgrade improvement option to help limit the potential for heaving, but not eliminate it, would be to remove any frost-susceptible soils present below

the exterior slabs' "footprints" down to the bottom-of-footing grades or to a maximum depth of 6 feet below subgrade elevations, whichever is less. We recommend the resulting excavation then be refilled with sand or sandy gravel having less than 50 percent of the particles by weight passing the #40 sieve and less than 5 percent of the particles by weight passing a #200 sieve. The bottom of the excavation should be sloped toward one or more collection points so that any water entering the backfill can be collected and removed. A series of perforated drainpipes will need to be installed to collect and dispose of the infiltrating water and/or groundwater that could accumulate within the backfill. The piping should be connected to a storm sewer or a sump to remove any accumulated water, or "day lighted" if grades permit. If the water is not removed, it is our opinion this option will not be effective in controlling heave.

An important geometric aspect of the excavation and replacement approach described above is sloping the banks of the excavations to create a more gradual transition between the unexcavated soils considered to be frost-susceptible and the excavation backfill which is not, to attenuate differential movement that may occur along the excavation boundary. We recommend 3:1 (horizontal:vertical) banks along transitions between frost-susceptible and non-frost-susceptible soils.

Regardless of what is done to the walkway or pavement area subgrade, it will be critical the end-user develop a detailed maintenance program to seal and/or fill any cracks and joints that may develop during the useful life of the various surface features. Concrete and bituminous will experience episodes of normal thermo-expansion and thermo-contraction during its useful life. During this time, cracks may develop and joints may open up, which will expose the subgrade and allow any water flowing overland to enter the subgrade and either saturate the subgrade soils or to become perched atop it. This occurrence increases the potential for heave due to freezing conditions in the general vicinity of the crack or joint. This type of heave has the potential to become excessive if not addressed as part of a maintenance program. Special attention should be paid to areas where dissimilar materials abut one another, where construction joints occur and where shrinkage cracks develop.

The on-going performance of pavements is impacted by conditions under which the pavement is asked to perform. These conditions include the environmental conditions, the actual use conditions and the level of ongoing maintenance performed. With regard to bituminous pavements in particular, because of normal thermo expansion and contraction, it is not unusual to have cracking develop within the first few years of placement and for the cracking to continue throughout the life of the pavement. A regular maintenance plan should be developed for filling cracks in bituminous 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. It is also not unusual for bituminous pavements to require a seal coat within the first 5 to 10 years to increase the long-term performance.

D.4. Utilities

D.4.a. Subgrade Stabilization

We anticipate that utilities can be installed per manufacturer bedding requirements.

D.4.b. Selection, Placement and Compaction of Backfill

We recommend selecting, placing and compacting utility backfill in accordance with the recommendations provided above in Section D.

D.5. Construction Quality Control

D.5.a. Excavation Observations

We recommend having a geotechnical engineer observe all excavations related to subgrade preparation and spread footing, slab-on-grade and pavement construction. The purpose of the observations is to evaluate the competence of the geologic materials exposed in the excavations, and the adequacy of required excavation oversizing.

D.5.b. Materials Testing

We recommend density tests be taken in excavation backfill and additional required fill placed below spread footings, slab-on-grade construction, beside foundation walls behind basement walls, and below pavements.

We recommend Marshall tests on bituminous mixes to evaluate strength and air voids, and density tests to evaluate compaction.

We also recommend slump, air content and strength tests of Portland cement concrete.

D.5.c. Pavement Subgrade Proofroll

We recommend that proofrolling of the pavement subgrades be observed by a geotechnical engineer to determine if the results of the procedure meet project specifications, or delineate the extent of additional pavement subgrade preparation work.

D.5.d. Cold Weather Precautions

If site grading and construction is anticipated during cold weather, all snow and ice should be removed from cut and fill areas prior to additional grading. No fill should be placed on frozen subgrades. No frozen soils should be used as fill.

Concrete delivered to the site should meet the temperature requirements of ASTM C 94. Concrete should not be placed on frozen subgrades. Concrete should be protected from freezing until the necessary strength is attained. Frost should not be permitted to penetrate below footings.

E. Procedures

E.1. Penetration Test Borings

The penetration test borings were drilled with a truck-mounted core and auger drill equipped with hollow-stem auger. The borings were performed in accordance with ASTM D 1586. Penetration test samples were taken at 2 1/2- or 5-foot intervals. Actual sample intervals and corresponding depths are shown on the boring logs.

E.2. Material Classification and Testing

E.2.a. Visual and Manual Classification

The geologic materials encountered were visually and manually classified in accordance with ASTM Standard Practice D 2488. A chart explaining the classification system is attached. Samples were placed in jars or bags and returned to our facility for review and storage.

E.2.b. Laboratory Testing

The results of the laboratory tests performed on geologic material samples are noted on or follow the appropriate attached exploration logs. The tests were performed in accordance with ASTM or AASHTO procedures.

E.3. Groundwater Measurements

The drillers checked for groundwater as the penetration test borings were advanced, and again after auger withdrawal. The boreholes were then backfilled as noted on the boring logs.

F. Qualifications

F.1. Variations in Subsurface Conditions

F.1.a. Material Strata

Our evaluation, analyses and recommendations were developed 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, and therefore strata boundaries and thicknesses must be inferred to some extent. Strata boundaries may also be gradual transitions, and can be expected 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 additional exploration work is completed, or construction commences. If any such variations are revealed, our recommendations should be re-evaluated. Such variations could increase construction costs, and a contingency should be provided to accommodate them.

F.1.b. Groundwater Levels

Groundwater measurements were made under the conditions reported herein and shown on the exploration logs, and interpreted in the text of this report. It should be noted that the observation periods were relatively short, and groundwater can be expected to fluctuate in response to rainfall, flooding, irrigation, seasonal freezing and thawing, surface drainage modifications and other seasonal and annual factors.

F.2. Continuity of Professional Responsibility

F.2.a. Plan Review

This report is based on a limited amount of information, and a number of assumptions were necessary to help us develop our recommendations. It is recommended that our firm review the geotechnical aspects of the designs and specifications, and evaluate whether the design is as expected, if any design changes have affected the validity of our recommendations, and if our recommendations have been correctly interpreted and implemented in the designs and specifications.

F.2.b. Construction Observations and Testing

It is recommended that we be retained to perform observations and tests during construction. This will allow correlation of the subsurface conditions encountered during construction with those encountered by the borings, and provide continuity of professional responsibility.

F.3. Use of Report

This report is for the exclusive use of the parties to which it has been addressed. 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.

F.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

MN Hwy 61

7TH AVE

City of Two Harbors,
Lake County,
Minnesota

9TH ST

Soil Boring #1

6TH AVE

Soil Boring #2

Proposed Project
Area

Soil Boring #3

8TH ST

Soil Boring #4

7TH ST

5TH AVE

Minnehaha
Elementary
School

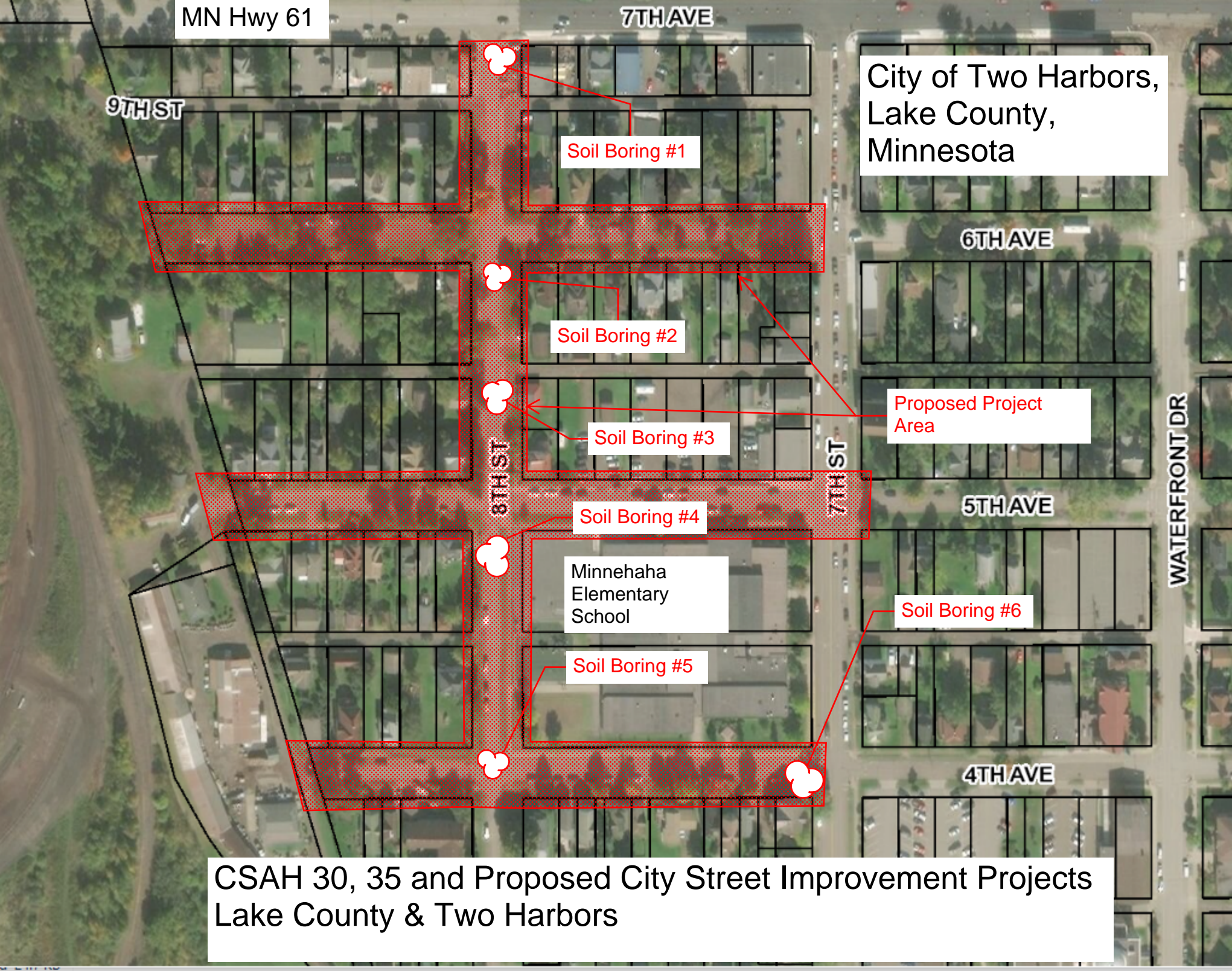
Soil Boring #6

Soil Boring #5

WATERFRONT DR

4TH AVE

CSAH 30, 35 and Proposed City Street Improvement Projects
Lake County & Two Harbors



See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2002541					BORING: ST-01		
Geotechnical Evaluation					LOCATION: See attached sketch		
2021 Lake County CSAH 35					NORTHING:		
7th Avenue to 4th Avenue; East One Block to 7th Street					EASTING:		
Two Harbors, Minnesota					END DATE: 03/24/20		
DRILLER: R. Hansen		LOGGED BY: S. Sullivan		START DATE: 03/24/20			
SURFACE ELEVATION:		RIG: 7516B	METHOD: 3 1/4" HSA	SURFACING: Bituminous			
WEATHER:							
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 _p tsf	MC %	Tests or Remarks
0.3		BITUMINOUS, 3 inches					
0.9		CONCRETE, 8 inches					
2.0		FILL: SILTY SAND (SM), fine to medium-grained Sand, trace Gravel, brown, frozen (moist when thawed)		7-11-7 (18) 17"			
		LEAN CLAY (CL), trace Gravel, reddish brown, frozen (moist when thawed) to moist, stiff to very stiff (GLACIAL TILL)	5	3-7-11 (18) 17"			
				4-6-7 (13) 14"			
			10	3-7-11 (18) 20"			
		<i>Silty Sand lense at 11 feet</i>					
14.5				3-4-7 (11) 21"			
		END OF BORING	15				Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			20				
			25				
			30				

Project Number B2002541 Geotechnical Evaluation 2021 Lake County CSAH 35 7th Avenue to 4th Avenue; East One Block to 7th Street Two Harbors, Minnesota					BORING: ST-02		
					LOCATION: See attached sketch		
					NORTHING:	EASTING:	
DRILLER: R. Hansen	LOGGED BY: S. Sullivan	START DATE: 03/24/20	END DATE: 03/24/20				
SURFACE ELEVATION:	RIG: 7516B	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER:			
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 _p tsf	MC %	Tests or Remarks
0-3		BITUMINOUS, 3 inches					
0-9		CONCRETE, 8 inches					
		FILL: SILTY SAND (SM), fine to medium-grained Sand, brown, frozen (moist when thawed)		3-5-7 (12) 15"		21	P200=20%
4.5		SILTY, CLAYEY SAND (SC-SM), fine to medium-grained Sand, brown, moist, medium (GLACIAL TILL)	5	1-2-4 (6) 7"			
6.5		LEAN CLAY (CL), reddish brown, moist, soft to medium (GLACIAL TILL)		2-3-4 (7) 13"			
			10	1-2-2 (4) 22"			
14.5				1-4-4 (8) 20"			
		END OF BORING	15				Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			20				
			25				
			30				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2002541					BORING: ST-03		
Geotechnical Evaluation					LOCATION: See attached sketch		
2021 Lake County CSAH 35					NORTHING:		
7th Avenue to 4th Avenue; East One Block to 7th Street					EASTING:		
Two Harbors, Minnesota					END DATE: 03/24/20		
DRILLER: R. Hansen		LOGGED BY: S. Sullivan		START DATE: 03/24/20		END DATE: 03/24/20	
SURFACE ELEVATION:		RIG: 7516B	METHOD: 3 1/4" HSA	SURFACING: Bituminous		WEATHER:	
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 _p tsf	MC %	Tests or Remarks
1.0		BITUMINOUS, 12 inches					
4.0		FILL: SILTY, CLAYEY SAND (SC-SM), fine to medium-grained Sand, trace Gravel, brown, frozen (moist when thawed)	5	8-18-28 (46) 15"		9	P200=18%
9.0		FILL: SILTY SAND (SM), fine to medium-grained Sand, with Gravel, brown, dry, medium dense	5	4-6-5 (11) 11"		8	P200=12%
				2-2-3 (5) 0"			No recovery
12.0		FILL: SILTY SAND (SM), fine to medium-grained Sand, with Gravel, trace glass, bituminous debris, black, moist	10	1-1-2 (3) 8"			
14.5		SILTY, CLAYEY SAND (SC-SM), fine to medium-grained Sand, with Gravel, trace glass, brown, moist, very soft to soft (GLACIAL TILL)		0-4-5 (9) WOH/6" 9"			Water not observed while drilling.
		END OF BORING	15				
		Boring then backfilled with auger cuttings					
			20				
			25				
			30				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2002541 Geotechnical Evaluation 2021 Lake County CSAH 35 7th Avenue to 4th Avenue; East One Block to 7th Street Two Harbors, Minnesota					BORING: ST-04		
					LOCATION: See attached sketch		
					NORTHING:	EASTING:	
DRILLER: R. Hansen	LOGGED BY: S. Sullivan	START DATE: 03/25/20	END DATE: 03/25/20				
SURFACE ELEVATION:	RIG: 7516B	METHOD: 3 1/4" HSA	SURFACING: Concrete	WEATHER:			
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 _p tsf	MC %	Tests or Remarks
0.5		CONCRETE, 6 inches					
1.0		AGGREGATE, 6 inches					
3.0		FILL: SILTY, CLAYEY SAND (SC-SM), fine to medium-grained Sand, with Gravel, brown, frozen (moist when thawed)	5	5-6-5 (11) 12"		13	P200=31%
		LEAN CLAY (CL), trace Gravel, reddish brown, frozen (moist when thawed) to moist, stiff (GLACIAL TILL)		4-4-8 (12) 12"			
			10	2-5-6 (11) 14"			
				2-7-8 (15) 18"			
14.5				4-6-8 (14) 23"			
		END OF BORING	15				Water observed at 13.0 feet while drilling.
		Boring then backfilled with auger cuttings					
			20				
			25				
			30				

See Descriptive Terminology sheet for explanation of abbreviations

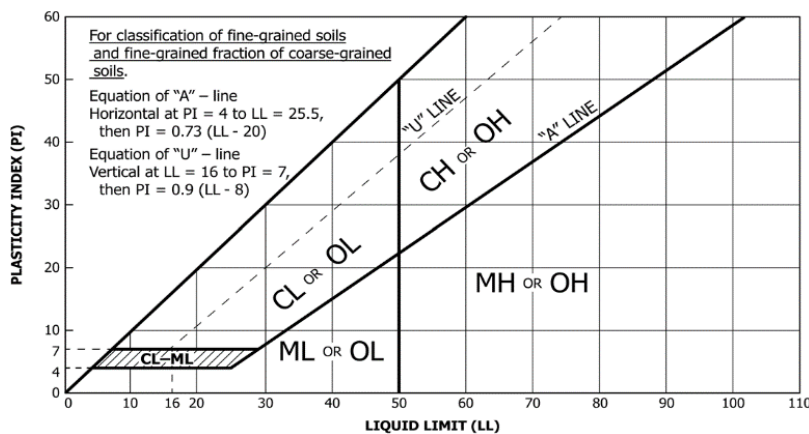
Project Number B2002541 Geotechnical Evaluation 2021 Lake County CSAH 35 7th Avenue to 4th Avenue; East One Block to 7th Street Two Harbors, Minnesota					BORING: ST-05		
					LOCATION: See attached sketch		
					NORTHING:	EASTING:	
DRILLER: R. Hansen	LOGGED BY: S. Sullivan	START DATE: 03/25/20	END DATE: 03/25/20				
SURFACE ELEVATION:	RIG: 7516B	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER:			
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 _p tsf	MC %	Tests or Remarks
0.2		BITUMINOUS, 2 inches					
0.8		CONCRETE, 8 inches					
1.2		AGGREGATE, 4 inches					
		FILL: SILTY, CLAYEY SAND (SC-SM), with Gravel, brown, moist		8-13-10 (23) 3"		23	Took off auger P200=42%
4.0		LEAN CLAY (CL), trace Gravel, reddish brown, moist, stiff to very stiff (GLACIAL TILL)		3-6-11 (17) 7"			
			5	3-6-8 (14) 14"			
				3-6-6 (12) 18"			
			10	3-6-8 (14) 18"			
14.5		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			15				
			20				
			25				
			30				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2002541 Geotechnical Evaluation 2021 Lake County CSAH 35 7th Avenue to 4th Avenue; East One Block to 7th Street Two Harbors, Minnesota					BORING: ST-06		
					LOCATION: See attached sketch		
DRILLER: R. Hansen			LOGGED BY: S. Sullivan		NORTHING:	EASTING:	
SURFACE ELEVATION:			RIG: 7516B	METHOD: 3 1/4" HSA	START DATE: 03/25/20	END DATE: 03/25/20	
SURFACING: Bituminous			WEATHER:				
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 _p tsf	MC %	Tests or Remarks
0.2		BITUMINOUS, 2 inches					
0.8		CONCRETE, 8 inches					
2.0		FILL: SILTY SAND (SM), fine to medium-grained Sand, with Gravel, trace bituminous, brown, frozen (dry when thawed)		7-16-16 (32) 11"			
4.0		FAT CLAY (CH), with Gravel, reddish brown, frozen (moist when thawed) (LACUSTRINE)		3-5-7 (12) 13"			
		LEAN CLAY (CL), with Gravel, reddish brown, moist, stiff (GLACIAL TILL)	5				
				3-5-7 (12) 15"			
			10	3-4-8 (12) 15"			
		<i>Silty Sand lense at 12 feet</i>					
14.5				3-6-8 (14) 20"			
		END OF BORING	15				Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			20				
			25				
			30				

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A			Soil Classification	
			Group Symbol	Group Name ^B
Coarse-grained Soils (more than 50% retained on No. 200 sieve)	Gravels (More than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels (Less than 5% fines ^C) $C_u \geq 4$ and $1 \leq C_c \leq 3^D$	GW	Well-graded gravel ^E
		Gravels with Fines (More than 12% fines ^C) Fines classify as ML or MH	GP	Poorly graded gravel ^E
	Sands (50% or more coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5% fines ^H) $C_u \geq 6$ and $1 \leq C_c \leq 3^D$	SW	Well-graded sand ^I
		Sands with Fines (More than 12% fines ^H) Fines classify as ML or MH	SP	Poorly graded sand ^I
	Silt and Clays (Liquid limit less than 50)	Inorganic PI > 7 and plots on or above "A" line ^J	CL	Lean clay ^{KLM}
		Organic Liquid Limit - oven dried < 0.75 Liquid Limit - not dried < 0.75	OL	Organic clay ^{KLMN} Organic silt ^{KLMO}
Silt and Clays (Liquid limit 50 or more)	Inorganic PI plots on or above "A" line	CH	Fat clay ^{KLM}	
	Organic Liquid Limit - oven dried < 0.75 Liquid Limit - not dried < 0.75	MH	Elastic silt ^{KLM}	
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	OC	Organic content, %
WD	Wet density, pcf	q _p	Pocket penetrometer strength, tsf
P200	% Passing #200 sieve	MC	Moisture content, %
		q _u	Unconfined compression test, tsf
		LL	Liquid limit
		PL	Plastic limit
		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^{L, M}

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 (\blacktriangledown), or at some time after drilling (\blacktriangledown).

Geotechnical Evaluation Report

2021 Street Improvements – Two Harbors
4th, 5th and 6th Avenue
Two Harbors, 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.



David E. Morrison, PE
Project Engineer
License Number: 54768
December 28, 2020



December 28, 2020

Project B2003426

Joseph Rhein, PE
Bolton & Menk, Inc.
2035 County Road D East
Maplewood, MN 55109-5314

Re: Geotechnical Evaluation
2021 Street Improvements – Two Harbors
4th, 5th and 6th Avenue
Two Harbors, Minnesota

Dear Mr. Rhein:

We are pleased to present this Geotechnical Evaluation Report for the 2021 Street Improvement project in Two Harbors, Minnesota. The project includes 4th, 5th and 6th Avenue in Two Harbors, Minnesota.

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 David Morrison at 218.624.4967 (dmorrison@braunintertec.com).

Sincerely,

BRAUN INTERTEC CORPORATION



David E. Morrison, PE
Project Engineer



Joseph C. Butler, PE
Business Unit Manager / Senior Engineer

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Appendix

Boring Location Sketch

Log of Boring Sheets SB-1 through SB-6

Descriptive Terminology of Soil

A. Introduction

A.1. Project Description

The City of Two Harbors is planning on reconstructing several roadway segments in 2021, including, 4th Avenue, 5th Avenue and 6th Avenue. The reconstruction will include replacement of the urban pavement section with concrete curb and gutter and bituminous pavements. Concrete pavement and utility improvements are also being considered. The project area is shown in Figure 1 below.

A.2. Purpose

The purpose of our geotechnical evaluation will be to characterize subsurface geologic conditions at selected exploration locations and evaluate their impact on the design and construction of the roadway reconstruction.

A.3. Background Information and Reference Documents

To facilitate our evaluation, we were provided with or reviewed the following information or documents:

- Request for Proposal provided by Bolton & Menk, Inc., dated, March 26, 2020.
- Preliminary site plan, prepared by Bolton & Menk, Inc., undated.
- Minnesota Geologic Map, “Geologic Map of Minnesota, Quaternary Geology”, prepared by Hobbes and Goebel, dated 1982.
- Aerial photos from Google Earth©

A.4. Site Conditions

The existing roadways are currently bituminous surfaced with an urban sections. It is apparent that the original pavement section consisted of concrete. Bituminous was placed over the concrete between the curbs. The roadway is generally in poor condition with underlying concrete pavements exposed in areas. Figure 1 below outlines the project area.

Figure 1. Site Layout



Figure provided by Bolton & Menk, Inc. undated.

A.5. Scope of Services

Our scope of services for this project was submitted as a Proposal QTB118182 to Bolton & Menk, Inc., dated March 30, 2020 and subsequently authorized on April 13, 2020. Tasks performed in accordance with our authorized scope of services included:

- Clearing exploration locations of underground utilities.
- Performing six (6) penetration test borings to a nominal depth of 14 feet or refusal, whichever is shallower.

- Preparing this report containing a boring location sketch, exploration logs, a summary of the geologic materials encountered, results of laboratory tests, and recommendations for the design of pavement and utilities.

Exploration locations and surface elevations were staked and surveyed by Bolton & Menk, Inc.

B. Results

B.1. Exploration Logs

B.1.a. Log of Boring Sheets

Log of Boring sheets for our penetration test borings are included in the Appendix. The logs identify and describe the geologic materials that were penetrated, and present the results of penetration resistance and other in-situ tests performed within them, and groundwater measurements.

Strata boundaries were inferred from changes in the penetration test samples and the auger cuttings. Because sampling was not performed continuously, the strata boundary depths are only approximate. The boundary depths likely vary away from the boring locations, and the boundaries themselves may also occur as gradual rather than abrupt transitions.

B.1.b. Geologic Origins

Geologic origins assigned to the materials shown on the logs and referenced within this report were 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, and (4) available common knowledge of the geologic processes and environments that have impacted the site and surrounding area in the past.

B.2. Geologic Profile

B.2.a. Geologic Materials

Table 1 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 sheets in the Appendix include definitions of abbreviations used in Table 1.

Table 1. Subsurface Profile Summary*

Strata	Soil Type - ASTM Classification	Range of Penetration Resistances	Commentary and Details
Pavement section			<ul style="list-style-type: none"> ▪ Overall thickness, approximately 8 inches. ▪ Bituminous thickness, approximately 3 inches. ▪ Concrete thickness, approximately 5 inches. ▪ Aggregate base appeared mixed with underlying lacustrine clays.
Fill	CL		<ul style="list-style-type: none"> ▪ Moisture condition generally moist. ▪ Thicknesses at boring locations varied from 2 to 4 feet. ▪ Contained variable amounts of sand and gravel.
Lacustrine Deposits	CH	4 to 10 BPF	<ul style="list-style-type: none"> ▪ Moisture condition generally moist.
Glacial deposits	CL	6 to 22 BPF	<ul style="list-style-type: none"> ▪ Moisture condition generally moist. ▪ Variable amounts of sand and gravel.

*Abbreviations defined in the attached Descriptive Terminology sheets.

For simplicity in this report, we define existing fill to mean existing, uncontrolled or undocumented fill.

B.3. Groundwater

Groundwater was not observed in the borings. Given the cohesive nature of the geologic materials encountered, however, we suspect ground water to be perched within sand seam in the native clays or within the surficial fills. A hydrostatic groundwater table is not expected.

Seasonal and annual fluctuations of groundwater should also be anticipated.

C. Basis for Recommendations

C.1. Design Considerations

The geotechnical issues influencing design of the new pavement appear to be limited. The geologic materials present at anticipated structure subgrade elevations generally appear suitable for support of pavements and utilities. The predominate pavement subgrade soil are lean and fat clays. Clay soils are considered poor subgrade soils. Relatively thick pavement sections will be required.

Due to the frost-susceptible nature of the silt- and clay-rich soils present at anticipated exterior slab and pavement subgrade elevations, consideration should also be given to incorporating a granular subbase into the pavement sections. This will enhance subgrade drainage efforts and reduce the potential for pavement subgrades to become saturated and heave upon freezing; strength loss upon thawing will also be reduced.

We were directed to develop recommendations for pavement design and utilities. Those recommendations are presented below in Section D.

C.2. Construction Considerations

From a construction perspective, the project team should also be aware that:

- Excavations may encounter groundwater within seams of sandy soils or perched within the fill on top of the native clays. If groundwater is encountered, we anticipate dewatering can be achieved with sumps and pumps.
- The clayey soils were observe to be above their optimum moisture contents, therefore they will also need to be dried to facilitate compaction.
- Because there are no such resources on the site, sands or gravels will have to be imported to backfill the balance of deep excavations that can only be partially backfilled with clay, and facilitate drainage behind below-grade walls and below pavements.

D. Recommendations

D.1. Pavement and Exterior Slab Subgrade Preparation

We recommend the following steps for pavement and exterior slab subgrade preparation, understanding the site will have a grade change of 1 feet or less. Note that project planning may need to require additional subcuts to limit frost heave.

1. Strip unsuitable soils consisting of topsoil, organic soils, peat, vegetation, existing structures and pavements from the area, within 3 feet of the surface of the proposed pavement grade.
2. Have a geotechnical representative observe the excavated subgrade to evaluate if additional subgrade improvements are necessary.
3. Slope subgrade soils to areas of sand or drain tile to allow the removal of accumulating water.
4. Scarify, moisture condition and surface compact the subgrade with at least 3 passes of a large roller with a minimum drum diameter of 3 1/2 feet.
5. Place pavement engineered fill to grade and compact in accordance with Section D.2 to bottom of pavement and exterior slab section. See Section D.2 for additional considerations related to frost heave.
6. Proofroll the pavement or exterior slab subgrade as described in Section D.2.

To improve long-term pavement performance, we recommend incorporating a sand sub-base into the pavement section. Section D.2 provides recommended pavement design sections with and without the sand subbase. Note, we recommend sloping subgrade soils to promote drainage and removal of accumulated water.

D.1.a. Excavation Dewatering

We recommend removing groundwater from the excavations. Sumps and pumps can be considered for dewatering excavations at this site.

D.1.b. Selecting Excavation Backfill and Additional Required Fill

On-site soils free of organic soil and debris can be considered for reuse as backfill and fill. The clay soils at this site will be more difficult to compact if wet or allowed to become wet, or if spread and compacted over wet surfaces.

We recommend that granular subbase material for pavement support consist of sand having less than 7 percent of the particles by weight passing a #200 sieve. We anticipate that this material will need to be imported.

D.1.c. Placement and Compaction of Backfill and Fill

We recommend spreading engineered fill in loose lifts of approximately 8 to 12 inches thick. We recommend compacting engineered fill in accordance with the criteria presented below in Table 2.

Table 2. Compaction Recommendations Summary

Reference	Relative Compaction, percent (ASTM D698 – Standard Proctor)	Moisture Content Variance from Optimum, percentage points	
		< 12% Passing #200 Sieve (typically SP, SP-SM)	> 12% Passing #200 Sieve (typically CL, SC, ML, SM)
Within 3 feet of pavement subgrade	100	±3	-1 to +3
More than 3 feet below pavement subgrade	95	±3	±3
Below landscaped surfaces	90	±5	±4

The project documents should not allow the contractor to use frozen material as engineered fill or to place engineered fill on frozen material.

We recommend performing density tests in engineered fill to evaluate if the contractors are effectively compacting the soil and meeting project requirements.

D.2. Pavements

D.2.a. Subgrade Proofroll

Prior to placing aggregate base material, we recommend proofrolling pavement subgrades to determine if the subgrade materials are loose, soft or weak, and in need of further stabilization, compaction or subexcavation and recompaction or replacement. A second proofroll should be performed after the aggregate base material is in place, and prior to placing bituminous or concrete pavement.

D.2.b. Design Resistance (R) Value

Based on the Request for Proposal, an estimated R value of the subgrade soils is requested in lieu of pavement section design.

Our scope of services for this project did not include laboratory tests on subgrade soils to determine an R-value for pavement design. R-values of the subgrade soils can be estimated using Table 5-3.2(a) of the current MnDOT Geotechnical and Pavement Manual. Lean clays were encountered within the upper 4 feet of the pavement subgrades. We recommend an R value of 10 be used for pavement design. Note the contractor may need to perform limited removal of unsuitable or less suitable soils to achieve this value

D.2.c. Materials and Compaction

We recommend specifying crushed aggregate base meeting the requirements of Minnesota Department of Transportation (MnDOT) Specification 3138 for Class 5. We recommend that the bituminous wear and base courses meet the requirements of Specifications 2360, Type SP. We recommend the aggregate gradations for the asphalt mixes meet Gradation B for the base course and Gradation B or A for the surface course. Gradation A contains a smaller aggregate size than Gradation B and will provide a surface with less visible aggregate which is desirable for some owners. We recommend the Performance Graded Asphalt cement be a PG 58-28. (If additional resistance to rutting, scuffing and dimpling is desired, we recommend utilizing a PG 64-28. If additional resistance to cold weather cracking is desirable, we recommend utilizing a PG 58-34.).

We recommend that the aggregate base be compacted to a minimum of 100 percent of its maximum standard Proctor dry density. We recommend that the bituminous pavement be compacted to at least 92 percent of the maximum theoretical Rice density.

We recommend specifying concrete for pavements that has a minimum 28-day compressive strength of 4,000 psi. We also recommend Type I cement meeting the requirements of ASTM C 150. We recommend specifying 5 to 7 percent entrained air for exposed concrete to provide resistance to freeze-thaw deterioration. We also recommend using a water/cement ratio of 0.45 or less for concrete exposed to deicers.

D.2.d. Subgrade Drainage

We recommend installing perforated drainpipes throughout pavement areas at low points and about catch basins. The drainpipes should be placed in small trenches extended at least 8 inches below the granular subbase layer – or aggregate base material where no subbase is present.

D.3. Frost Protection

D.3.a. General

All or some of the exterior slabs, as well as pavements, will be underlain with fat clay and silty sand, which are considered to be highly frost-susceptible. Such soils can retain moisture and heave upon freezing. In general, this characteristic is not an issue unless these soils become saturated due to surface runoff or infiltration or are excessively wet in-situ. Once frozen, unfavorable amounts of general and isolated heaving of the soils and the surface structures supported on them could develop. This type of heaving could impact design drainage patterns and the performance of exterior slabs and pavements. To address most of the heave related issues, we recommend that general site grades and grades for exterior surface features be set to direct surface drainage away from across paved areas and away from walkways to limit the potential for saturation of the subgrade and any subsequent heaving. General grades should also have enough "slope" to tolerate potential larger areas of heave which may not fully settle when thawed.

D.3.b. Exterior Slabs

Even small amounts of frost-related differential movement at walkway joints or cracks can create tripping hazards. Several subgrade improvement options can be explored to address this condition.

The most conservative and potentially most costly subgrade improvement option to help limit the potential for heaving, but not eliminate it, would be to remove any frost-susceptible soils present below the exterior slabs' "footprints" down to the bottom-of-footing grades or to a maximum depth of 6 feet below subgrade elevations, whichever is less. We recommend the resulting excavation then be refilled with sand or sandy gravel having less than 50 percent of the particles by weight passing the #40 sieve and less than 5 percent of the particles by weight passing a #200 sieve. The bottom of the excavation should be sloped toward one or more collection points so that any water entering the backfill can be collected and removed. A series of perforated drainpipes will need to be installed to collect and dispose of the infiltrating water and/or groundwater that could accumulate within the backfill. The piping should be connected to a storm sewer or a sump to remove any accumulated water, or "day lighted" if grades permit. If the water is not removed, it is our opinion this option will not be effective in controlling heave.

An important geometric aspect of the excavation and replacement approach described above is sloping the banks of the excavations to create a more gradual transition between the unexcavated soils considered to be frost-susceptible and the excavation backfill which is not, to attenuate differential movement that may occur along the excavation boundary. We recommend 3:1 (horizontal:vertical) banks along transitions between frost-susceptible and non-frost-susceptible soils.

Regardless of what is done to the walkway or pavement area subgrade, it will be critical the end-user develop a detailed maintenance program to seal and/or fill any cracks and joints that may develop during the useful life of the various surface features. Concrete and bituminous will experience episodes of normal thermo-expansion and thermo-contraction during its useful life. During this time, cracks may develop and joints may open up, which will expose the subgrade and allow any water flowing overland to enter the subgrade and either saturate the subgrade soils or to become perched atop it. This occurrence increases the potential for heave due to freezing conditions in the general vicinity of the crack or joint. This type of heave has the potential to become excessive if not addressed as part of a maintenance program. Special attention should be paid to areas where dissimilar materials abut one another, where construction joints occur and where shrinkage cracks develop.

The on-going performance of pavements is impacted by conditions under which the pavement is asked to perform. These conditions include the environmental conditions, the actual use conditions and the level of ongoing maintenance performed. With regard to bituminous pavements in particular, because of normal thermo expansion and contraction, it is not unusual to have cracking develop within the first few years of placement and for the cracking to continue throughout the life of the pavement. A regular maintenance plan should be developed for filling cracks in bituminous 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. It is also not unusual for bituminous pavements to require a seal coat within the first 5 to 10 years to increase the long-term performance.

D.4. Utilities

D.4.a. Subgrade Stabilization

We anticipate that utilities can be installed per manufacturer bedding requirements.

D.4.b. Selection, Placement and Compaction of Backfill

We recommend selecting, placing and compacting utility backfill in accordance with the recommendations provided above in Section D.

D.5. Construction Quality Control

D.5.a. Excavation Observations

We recommend having a geotechnical engineer observe all excavations related to subgrade preparation and spread footing, slab-on-grade and pavement construction. The purpose of the observations is to

evaluate the competence of the geologic materials exposed in the excavations, and the adequacy of required excavation oversizing.

D.5.b. Materials Testing

We recommend density tests be taken in excavation backfill and additional required fill placed below spread footings, slab-on-grade construction, beside foundation walls behind basement walls, and below pavements.

We recommend Marshall tests on bituminous mixes to evaluate strength and air voids, and density tests to evaluate compaction.

We also recommend slump, air content and strength tests of Portland cement concrete.

D.5.c. Pavement Subgrade Proofroll

We recommend that proofrolling of the pavement subgrades be observed by a geotechnical engineer to determine if the results of the procedure meet project specifications, or delineate the extent of additional pavement subgrade preparation work.

D.5.d. Cold Weather Precautions

If site grading and construction is anticipated during cold weather, all snow and ice should be removed from cut and fill areas prior to additional grading. No fill should be placed on frozen subgrades. No frozen soils should be used as fill.

Concrete delivered to the site should meet the temperature requirements of ASTM C 94. Concrete should not be placed on frozen subgrades. Concrete should be protected from freezing until the necessary strength is attained. Frost should not be permitted to penetrate below footings.

E. Procedures

E.1. Penetration Test Borings

The penetration test borings were drilled with a truck-mounted core and auger drill equipped with hollow-stem auger. The borings were performed in accordance with ASTM D 1586. Penetration test samples were taken at 2 1/2- or 5-foot intervals. Actual sample intervals and corresponding depths are shown on the boring logs.

E.2. Material Classification and Testing

E.2.a. Visual and Manual Classification

The geologic materials encountered were visually and manually classified in accordance with ASTM Standard Practice D 2488. A chart explaining the classification system is attached. Samples were placed in jars or bags and returned to our facility for review and storage.

E.2.b. Laboratory Testing

The results of the laboratory tests performed on geologic material samples are noted on or follow the appropriate attached exploration logs. The tests were performed in accordance with ASTM or AASHTO procedures.

E.3. Groundwater Measurements

The drillers checked for groundwater as the penetration test borings were advanced, and again after auger withdrawal. The boreholes were then backfilled as noted on the boring logs.

F. Qualifications

F.1. Variations in Subsurface Conditions

F.1.a. Material Strata

Our evaluation, analyses and recommendations were developed 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, and therefore strata boundaries and thicknesses must be inferred to some extent. Strata boundaries may also be gradual transitions, and can be expected 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 additional exploration work is completed, or construction commences. If any such variations are revealed, our recommendations should be re-evaluated. Such variations could increase construction costs, and a contingency should be provided to accommodate them.

F.1.b. Groundwater Levels

Groundwater measurements were made under the conditions reported herein and shown on the exploration logs, and interpreted in the text of this report. It should be noted that the observation periods were relatively short, and groundwater can be expected to fluctuate in response to rainfall, flooding, irrigation, seasonal freezing and thawing, surface drainage modifications and other seasonal and annual factors.

F.2. Continuity of Professional Responsibility

F.2.a. Plan Review

This report is based on a limited amount of information, and a number of assumptions were necessary to help us develop our recommendations. It is recommended that our firm review the geotechnical aspects of the designs and specifications, and evaluate whether the design is as expected, if any design changes have affected the validity of our recommendations, and if our recommendations have been correctly interpreted and implemented in the designs and specifications.

F.2.b. Construction Observations and Testing

It is recommended that we be retained to perform observations and tests during construction. This will allow correlation of the subsurface conditions encountered during construction with those encountered by the borings, and provide continuity of professional responsibility.

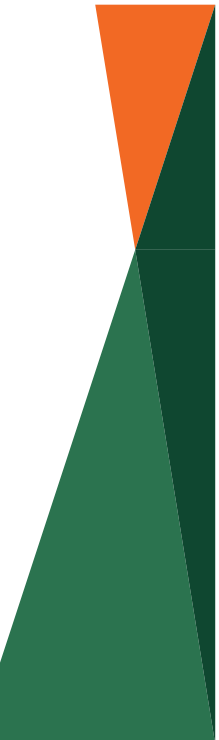
F.3. Use of Report

This report is for the exclusive use of the parties to which it has been addressed. 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.

F.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



Drawing Information

Project No:	B2003426
Drawing No:	B2003426
Date Drawn:	6/23/20
Last Modified:	6/23/20

Project Information

2021 Street Improvements - Two Harbors

Various Streets

Two Harbors, Minnesota

Site Sketch

MAP SCALE: 1"=100' (1:12000) 2021-06-23 11:00 AM

Project Number B2003426 Geotechnical Evaluation 2021 Street Improvements - Two Harbors Various Two Harbors, Minnesota					BORING: SB-1		
					LOCATION: See attached sketch		
					NORTHING:	EASTING:	
DRILLER: Range Environmental	LOGGED BY: S. Sullivan		START DATE: 04/27/20	END DATE: 04/27/20			
SURFACE ELEVATION:	RIG: Subcontractor	METHOD: Direct Push	SURFACING:	WEATHER: 43°, 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 _p tsf	MC %	Tests or Remarks
0.3		BITUMINOUS, 3 inches		3-5-4			Water not observed while drilling.
0.7		CONCRETE, 5 inches		(9)			
2.0		FILL: LEAN CLAY (CL), with Gravel, brown, moist		1-4-7			
		LEAN CLAY (CL), with Gravel, reddish brown, moist, stiff to very stiff (GLACIAL TILL)		(11)			
			5	4-3-4			
				(7)			
				2-3-5			
				(8)			
			10	6-9-13			
				(22)			
14.0				6-9-12			
				(21)			
		END OF BORING	15				
		Boring then backfilled with auger cuttings					
			20				
			25				
			30				

Project Number B2003426 Geotechnical Evaluation 2021 Street Improvements - Two Harbors Various Two Harbors, Minnesota					BORING: SB-2		
					LOCATION: See attached sketch		
					NORTHING:	EASTING:	
DRILLER: Range Environmental	LOGGED BY: S. Sullivan	START DATE: 04/27/20	END DATE: 04/27/20				
SURFACE ELEVATION:	RIG: Subcontractor	METHOD: Direct Push	SURFACING:	WEATHER: 43°, 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 _p tsf	MC %	Tests or Remarks
0.3		BITUMINOUS, 3 inches		1-2-4			Water not observed while drilling.
0.7		CONCRETE, 5 inches		(6)			
2.0		FILL: LEAN CLAY (CL), with Gravel, reddish brown, moist		1-3-5			
		LEAN CLAY (CL), with Gravel, reddish brown, moist, medium to stiff (GLACIAL TILL)		(8)			
			5	2-4-6			
				(10)			
8.5				2-4-7			
				(11)			
		FAT CLAY (CH), reddish brown, moist, stiff (LACUSTRINE)	10	3-4-6			
				(10)			
14.0				2-3-6			
				(9)			
		END OF BORING	15				
		Boring then backfilled with auger cuttings					
			20				
			25				
			30				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2003426 Geotechnical Evaluation 2021 Street Improvements - Two Harbors Various Two Harbors, Minnesota					BORING: SB-3		
					LOCATION: See attached sketch		
					NORTHING:	EASTING:	
DRILLER: Range Environmental	LOGGED BY: S. Sullivan		START DATE: 04/28/20	END DATE: 04/28/20			
SURFACE ELEVATION:	RIG: Subcontractor	METHOD: Direct Push	SURFACING:	WEATHER: 38°, windy			
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 _p tsf	MC %	Tests or Remarks
0.3		BITUMINOUS, 3 inches		2-4-4			Water not observed while drilling.
0.7		CONCRETE, 5 inches		(8)			
		FILL: LEAN CLAY with SAND (CL), brown, moist		2-3-3			
4.0				(6)			
		FAT CLAY with SAND (CH), trace Gravel, brown, moist, soft to medium (LACUSTRINE)	5	1-1-3			
6.0				(4)			
		FAT CLAY (CH), brown, moist, soft to medium (LACUSTRINE)		1-3-3			
8.5				(6)			
		FAT CLAY (CH), trace organic, brownish black, moist, soft to medium (LACUSTRINE)	10	1-3-3			
12.0				(6)			
		FAT CLAY (CH), reddish brown, moist, soft to medium (LACUSTRINE)		1-2-3			
14.0				(5)			
		END OF BORING	15				
		Boring then backfilled with auger cuttings					
			20				
			25				
			30				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2003426 Geotechnical Evaluation 2021 Street Improvements - Two Harbors Various Two Harbors, Minnesota					BORING: SB-4		
					LOCATION: See attached sketch		
					NORTHING:	EASTING:	
DRILLER: Range Environmental	LOGGED BY: S. Sullivan		START DATE: 04/27/20	END DATE: 04/27/20			
SURFACE ELEVATION:	RIG: Subcontractor	METHOD: Direct Push	SURFACING:	WEATHER: 38°, windy			
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 _p tsf	MC %	Tests or Remarks
0.3		BITUMINOUS, 3 inches		3-2-3			Water not observed while drilling.
0.7		CONCRETE, 5 inches		(5)			
		FILL: LEAN CLAY with SAND (CL), brown, moist, medium		2-4-4			
4.0				(8)			
		FAT CLAY with SAND (CH), brown, moist, medium (LACUSTRINE)	5	2-3-3			
6.0				(6)			
		LEAN CLAY (CL), trace Gravel, brown, moist, medium to stiff (GLACIAL TILL)		2-3-3			
				(6)			
			10	4-6-8			
				(14)			
14.0				3-7-8			
				(15)			
		END OF BORING	15				
		Boring then backfilled with auger cuttings					
			20				
			25				
			30				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2003426 Geotechnical Evaluation 2021 Street Improvements - Two Harbors Various Two Harbors, Minnesota					BORING: SB-6		
					LOCATION: See attached sketch		
					NORTHING:	EASTING:	
DRILLER: Range Environmental	LOGGED BY: S. Sullivan		START DATE: 04/27/20	END DATE: 04/27/20			
SURFACE ELEVATION:	RIG: Subcontractor	METHOD: Direct Push	SURFACING:	WEATHER: 41°, windy			
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 _p tsf	MC %	Tests or Remarks
0.3		BITUMINOUS, 3 inches					
0.7		CONCRETE, 5 inches					
		FILL: LEAN CLAY with SAND (CL), reddish brown, moist		2-2-4 (6)			
4.0		FAT CLAY with SAND (CH), fine to medium-grained, reddish brown, moist, medium (LACUSTRINE)	5	2-3-3 (6)			
8.5		FAT CLAY (CH), reddish brown, moist, medium to stiff (LACUSTRINE)	10	1-3-3 (6)			
				1-3-7 (10)			
14.0				1-3-3 (6)			
		END OF BORING	15				Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			20				
			25				
			30				

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A			Soil Classification		
			Group Symbol	Group Name ^B	
Coarse-grained Soils (more than 50% retained on No. 200 sieve)	Gravels (More than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels (Less than 5% fines ^C)	$C_u \geq 4$ and $1 \leq C_c \leq 3^D$	GW	Well-graded gravel ^E
		Gravels with Fines (More than 12% fines ^C)	$C_u < 4$ and/or ($C_c < 1$ or $C_c > 3$) ^D	GP	Poorly graded gravel ^E
			Fines classify as ML or MH	GM	Silty gravel ^{EFG}
	Sands (50% or more coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5% fines ^H)	$C_u \geq 6$ and $1 \leq C_c \leq 3^D$	SW	Well-graded sand ^I
		Sands with Fines (More than 12% fines ^H)	$C_u < 6$ and/or ($C_c < 1$ or $C_c > 3$) ^D	SP	Poorly graded sand ^I
			Fines classify as ML or MH	SM	Silty sand ^{FGI}
	Fines classify as CL or CH	SC	Clayey sand ^{FGI}		
Fine-grained Soils (50% or more passes the No. 200 sieve)	Silt and Clays (Liquid limit less than 50)	Inorganic	PI > 7 and plots on or above "A" line ^J	CL	Lean clay ^{KLM}
			PI < 4 or plots below "A" line ^J	ML	Silt ^{KLM}
	Silt and Clays (Liquid limit 50 or more)	Inorganic	PI plots on or above "A" line	CH	Fat clay ^{KLM}
			PI plots below "A" line	MH	Elastic silt ^{KLM}
		Organic	Liquid Limit – oven dried < 0.75	OL	Organic clay ^{KLMN} Organic silt ^{KLMQ}
	Liquid Limit – not dried < 0.75		OH	Organic clay ^{KLMP} Organic silt ^{KLMQ}	
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.

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^{L, M}

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.

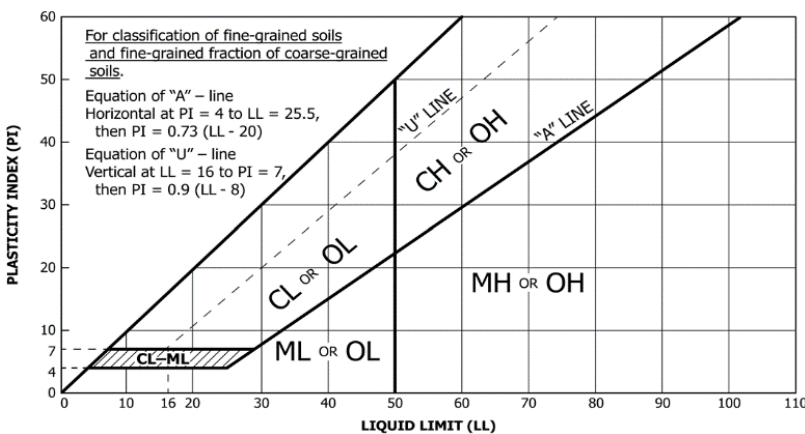
Partial Penetration: If the sampler could not be driven through a full 6-inch interval, the number of blows for that partial penetration is shown as #/x" (i.e. 50/2"). The N-value is reported as "REF" indicating refusal.

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 (\blacktriangledown), or at some time after drilling (\blacktriangledown).



Laboratory Tests					
DD	Dry density, pcf	OC	Organic content, %	LL	Liquid limit
WD	Wet density, pcf	q _p	Pocket penetrometer strength, tsf	PL	Plastic limit
P200	% Passing #200 sieve	MC	Moisture content, %	PI	Plasticity index
		q _u	Unconfined compression test, tsf		

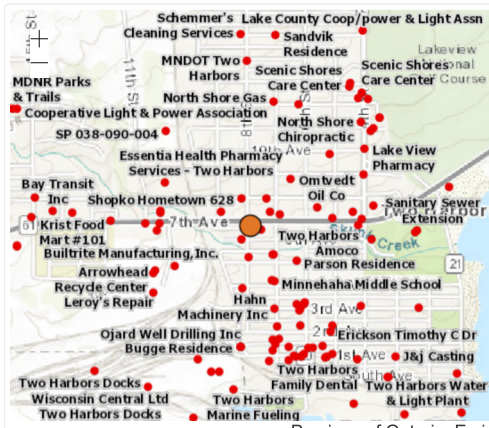
[Data](#)

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Hanson's Power Equipment

Location:	732 7th Ave Two Harbors, MN 55616-1456 Lake County
Watershed:	Lake Superior - South (04010102)
Latitude:	47.02541148
Longitude:	-91.67455424
Coordinate collection method:	Digitized - MPCA internal map
Currently active?	<input checked="" type="checkbox"/> Yes
Industry classification:	Outdoor Power Equipment Stores
Institutional controls:	No



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[Owners](#)

[Documents \(1\)](#)



Hazardous Waste

Hazardous Waste - MN0000989145

Status: Inactive

[More Detail](#) ▼



Investigation and Cleanup

Petroleum Remediation - LS0019035 - Leak Site

Status: Inactive

Leak sites are locations where a release of petroleum products has occurred from a tank system. Leak sites can occur from aboveground or underground tank systems as well as from spills at tank facilities.

[Less Detail ▲](#)

Events

Event	Start	End
Site Closed	02/08/2017	02/08/2017
Monitoring Report Reviewed	07/08/2016	02/08/2017
Technical Review of Monitoring Report Completed	07/08/2016	10/06/2016
Commissioner's Site Report Request Processed	02/17/2016	02/18/2016
Monitoring Report Reviewed	11/05/2015	02/04/2016
More Work Requested	11/05/2015	02/04/2016
Technical Review of Monitoring Report Completed	11/05/2015	01/25/2016
Limited Site Investigation Reviewed	03/19/2015	06/22/2015
More Work Requested	03/19/2015	06/22/2015
Technical Review of Limited Site Investigation Report Completed	03/19/2015	04/23/2015
Responsible Party Determined	03/01/2013	03/01/2013
Standard Letter Issued	03/01/2013	03/01/2013
Leak Reported	02/20/2013	02/20/2013
Leak Discovered	10/17/2006	10/17/2006

Inspections and field work

Type	Date
Field Work Notification	05/13/2016
Field Work Notification	04/01/2016
Field Work Notification	09/15/2015
Field Work Notification	08/25/2015
Field Work Notification	08/07/2015
Field Work Notification	09/02/2014
Field Work Notification	08/06/2014
Field Work Notification	08/06/2014
Field Work Notification	09/24/2013

Links to additional data sources

[Leak Data - LS0019035](#)

APPENDIX B

MNDOT 2019 SALT SCHEDULE OF MATERIAL CONTROL

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2019

SALT Schedule of Materials Control



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Introduction

This Schedule of Materials Control (SMC) outlines the minimum testing requirements for State Aid Funded and/or Federal Aid Projects off the National Highway and Trunk Highway System. Optional to this SMC is the MnDOT Materials Control Schedule. Usage of either schedule must be defined in the project proposal.

The SMC - LGA serves as a guide for material testing with allowable acceptance "as directed by the Engineer" detailed in Specification 1501.1(1) - Authority of the Engineer. These testing rates are a minimum and additional tests may be taken at the Engineer's discretion. A minimal testing rate does not always ensure a quality product; field observations and attention to detail is crucial. Materials not listed on an approved products list may be sampled and tested as directed by the Engineer. Materials listed on a Qualified Products list may be accepted or tested at the discretion of the Engineer.

Federal Aid projects require Independent Assurance Inspection. Contact the MnDOT District IA Inspector when the job starts to provide the proper servicing of your project.

Definitions

[Schedule of Materials Control](#)

Schedule of Materials Control (SMC) are inserted into project proposals to direct how materials are to be sampled and tested. The SMC is updated yearly. Each SMC is project specific. Therefore, one needs to refer to their specific proposal.

[Approved/ Qualified Products List](#)

Products are "approved" when they have been found to routinely meet all applicable standards and specifications. The product is placed on the list based upon established successful manufacturer's quality control and warranties, but the listing may expire or require periodic renewal to verify the product has not changed over time. The approval process for the individual product should specify any expiration requirement. Testing may still be on at the Engineers discretion.

[Certified Sources](#)

Certified Sources must comply with each individual product's defined "certification procedure". Acceptance of products from certified sources follows the same sampling and testing as "approved/ qualified" products.

Quality control (QC): The activities performed by the **Contractor/Producer** that have to do with making sure the quality of a product or process meets the relevant contract requirements.

Quality assurance (QA): The activities performed by the **Department/Agency** that have to do with making sure the quality of a product or process meets the relevant contract requirements.

Verification Testing: Sampling and testing performed by the Department/Agency to validate the quality of the product per Title 23-Highways, Code of Federal Regulation 637.203. **Part of QA.**

Bituminous Quality Management

The Contractor shall provide and maintain a quality control program as detailed in Specification 2360.2.G. The Engineer shall review the quality control program for compliance.

	Type of Test	Spec Section (1)	Contractor / Producer - QC Testing Rates	Agency - QA Testing Rates	
Start-Up Testing Rates for the 1st 2000 tons (2)	Bulk Specific Gravity	2360.2.G.7.b	1 test per 500 tons 55 lb. sample 3 full cylinder molds	(3) 1 Verification Mixture Sample test per day, all Verification samples are from a split (QC/QA) sample.	
	Maximum Specific Gravity	2360.2.G.7.c			
	Air Voids (calculated)	2360.2.G.7.d			
	Asphalt Content	2360.2.G.7.a			
	Adj. Asphalt Film Thickness (AFT)	2360.2.E.7.e			
	Gradation	2360.2.G.7.f			
	Fines to Effective Asphalt Ratio (calculated)	2360.2.G.7.a/f	1 test per 1000 tons (4) (5) (6)		
	Coarse Aggregate Angularity (CAA)	2360.2.G.7.g			
Production Testing Rates	Fine Aggregate Angularity (FAA)	2360.2.G.7.h	(4) (5)	(3) 1 Verification Mixture Sample test per day/ mix type, submit companion to the QC - CAA & FAA test results.	
	Added AC/Total AC Ratio (calculated)	2360.2.G.7.a			
	Bulk Specific Gravity	2360.2.G.7.b	1 test per 1000 tons 55 lb. sample 3 full cylinder molds		
	Maximum Specific Gravity	2360.2.G.7.c			
	Air Voids (calculated)	2360.2.G.7.d			
	Asphalt Content	2360.2.G.7.a			
	Adj. Asphalt Film Thickness (AFT)	2360.2.E.7.e			
	Gradation (minimum of 1 per day)	2360.2.G.7.f			
	Added AC/Total AC Ratio (calculated)	2360.2.G.7.a			
	Coarse Aggregate Angularity (CAA)	2360.2.G.7.g	(4) (5)		
	Fine Aggregate Angularity (FAA)	2360.2.G.7.h	(4) (6)		
	TSR	2360.2.G.7.i	When directed by the Engineer		
	Aggregate Specific Gravity	2360.2.G.7.j	As directed by the Engineer		
	Mixture Moisture Content	2360.2.G.7.k	As directed by the Engineer		
	Asphalt Binder Certified Supplier	2360.2.G.7.l	(7) 1qt. Steel container for asphalt binder. 1/2 gal. plastic container for emulsion		
Asphalt Emulsion Certified Supplier	2357				
Compaction / Density Requirements	2360.3.D	Review special provisions			
Small Quantity Requirements	< 300 tons per day may be accepted by the Engineer without testing.				
Agencies using MnDOT Metro Inspection Services will be sampled at the current MnDOT Schedule of materials Control Rates and will be billed accordingly.					

NOTES: Testing rates are minimums, additional testing is encouraged to ensure a quality product.

- (1)** Review Special Provisions & 2360.2.G Mixture Quality Management.
- (2)** The testing rates apply only to mixtures that have not been tested on previous projects in the current year.
- (3)** Companion Sample should be collected from each QC sample. Submit one per day for Verification Testing.
- (4)** The Contractor will retain the extracted gradation samples in containers with field identification numbers for a period of 10 calendar days. The Engineer will identify which extracted gradation sample is the Verification Companion Sample and whether it is to be tested for coarse and fine aggregate angularity.
- (5) At start-up or new Mix Design:** 2 tests/ day for a minimum of 2 days, then 1/day if CAA is met. If CAA > 8% of requirement, 1 sample/ day but test 1/ week. No testing required for Class A and B Aggregates.
- (6) At start-up or new Mix Design:** 2 tests per day for a minimum of 2 days, then 1/day if FAA is met. If FAA > 5% of requirement, 1 sample/ day but test 1/week.
- (7)** Shall be a Certified Supplier - No Samples Required unless otherwise directed by the Engineer.

Bituminous Specialty Items

Type of Test	Spec	Contractor/Producer – QC Testing Rates	Agency- QA Testing Rates
Gradation	2363	1 per 1,000 Ton with a minimum 1 per day.	1 per day. 35 lbs.
PASSRC & PASB	3139.3		
Micro-Surfacing	2354 3139.5	Stockpile: 1/1,500 Tons (min 1/day) Machine Hopper: 1/500 Ton (min 1/day)	Stockpile & Machine Hopper: 1/day, 30 lbs.
Seal Coat, Underseal & Otta Seal	2356 3137.2B	Stockpile: 1/1,500 Tons (min 1/day) Chip Spreader Hopper: 1/day	1/day from Hopper. 30 lbs.
% Crushing - CAA	2363	1 per 1,000 Ton with a minimum 1 per day.	1 per day from gradation test. 35 lbs.
PASSRC & PASB	3139.3		
Moisture / Aggregate	2354	Machine Hopper: 1/500 Tons (min 3/day)	1/day 2lbs
Micro-Surfacing	3139.5		
Sand Equivalence	2354	1/day	Test at Engineer discretion, 25 lbs.
Micro-Surfacing			
Flakiness Index	2356	Sample taken from first load on first day, submit to Agency: 30 lbs.	Agency will test at their discretion, see Lab Manual 1223
Bituminous Seal Coat & Bituminous Underseal			
Bituminous Mixture	2353	1/500 Tons, min 1/day. %AC, Gradation, Max SpG, Adj.AFT	1/day, 20 lbs. 1 cylinder from truck box.
UTBWC	3151.2G		
PASSRC & PASB	3151 2363	Asphalt spot check: min 1/day	-
Stone Matrix Asphalt - SMA Lab Manual 1203, 1204, 1205, 1211, 1214, 1806, 1807, 1808, 1813, 1853, 1854, 1855, AI SP-2 AASHTO T305	2365	Tests , %AC, gradation, Gmm, Gmb, Voids, VMA, CAA, Draindown, VCA, fines/effective asphalt. Rate, (1/1000 tons, min. 1/day) Agg SpG, mix moisture, TSR to be tested as directed by Engineer. Submit companion 1 per day to agency: 3 full 6" by 12" cylinders	Tests: %AC, Gradation, Gmm, Gmb, Voids, VMA, CAA, VCA, fines/effective asphalt. Agency is not required to do draindown. Copy MDR to Project Engineer and Grading & Base Engineer.
Asphalt Binder Tests		Asphalt Emulsion List	Asphalt Binder List
UTBWC	2353 3151	Shall be a Certified Supplier - No Samples Required unless otherwise directed by the Engineer: Asphalt Binder: First load, then 1/250,000 gallons. Sample size of 1 quart metal container. Emulsified Asphalt: First load, then 1/50,000 gallons. Sample size of 1/2 gallon wide screw top plastic container.	
Micro-Surfacing	2354		
Seal Coat, Underseal & Otta Seal	2356		
Tack Coat	2357		
PASSRC & PASB	3151		
Asphalt Binder Rate	2354	Verify Application Rate 3/day	Verify Application Rate 1/day
Micro-Surfacing			
Fog Seal	2355	Verify Application Rate 1/day	Verify Application Rate 1/day
Seal Coat, Underseal & Otta Seal	2356		
Bit Tack Coat	2357		

Contact the MnDOT District IA Inspector to provide servicing for your federal aid project.

Cold Inplace Recycling (CIR) & Stabilization Full Depth Reclamation (SFDR)

Specification 2215

Test Type	Contractor/Producer QC Testing Rates	Agency QA Testing Rates	Grading & Base Manual/Form
Gradation SFDR (Simple) Pre-ground un-stabilized material	1 per mile - report sieves 2" & 3"	Run gradation at the discretion of the Engineer	.215 / 101 report sieve 2" & 3"
Gradation (Entire) (Material to be stabilized)	One per day, give split sample to the Engineer	Run gradation at the discretion of the Engineer	.215 / 101 report sieve 2", 1.5", 1.25", 1", 3/4", 3/8", #4, #10, #30.
Gradation (Simple) (Material to be stabilized)	1 per mile for SFDR & CIR with top size screening. 4 / mile for CIR w/o top size screens.	Run gradation at the discretion of the Engineer	.215 & .293 / 101 report sieve 2" & 1.5" for SFDR, 1.5" and 1.25" for CIR
Depth Check - Unstabilized and Stabilized	1 per 1,000' /machine width for each vertical machine face for initial pulverization and stabilization.	1 per day	.284 / 401
Moisture (stabilized) – before compaction (from windrow)	1 per mile (4 per day max)	Run moisture at the discretion of the Engineer	.245 Speedy tester not allowed.
Penetration Index (DCP) - SFDR only Unstabilized.	1 per 1/2 mile lane mile	1 per lane mile	.255 / 205
Calibrate: mineral stabilizing agent application rate.	Once using design rate per vane feeder.	Observe contractor calibration	.286 or .287
Moisture: before injecting liquid bituminous material	1 per 5,000 feet of daily anticipated SFDR & one after rain or mechanical drying out (disking, etc.).	none	.281 / 105
Yield: Mineral Stabilizing Agent and/or Liquid Bituminous Material	1 per transport load each type	1 per day each type	.286 & .287 / 402 & 403
Compaction: Nuclear density for SFDR stabilized and CIR	1 per 500 feet of lane width, (see note below) .	Observe the Contractor.	.282
Control Strip: SFDR Stabilized and CIR	Minimum of once per project	Observe the Contractor.	
Bituminous Material Samples	none	Shall be a Certified Supplier - No Samples Required unless directed by the Engineer.	1 quart each sample
Mineral Stabilizing Agent Samples	none	1 sample	none
Foaming asphalt checks expansion ratio & half life	1 per load	Observe the Contractor once per day.	.285
Moisture (stabilized) - before placement of next layer during curing.	Two each day after compaction until placement of next layer.	none	Grading & Base Manual

Note: The Engineer may require a Contractor to perform additional nuclear density tests in areas that the Engineer believes are failing density requirements.

Grading and Base Construction Items (1 of 3)

		Material Type	Spec.*	Contractor / Producer QC Testing Rates	Minimum Required Agency QA Testing Rates	Verification Testing Sample
Gradation Testing (2) (3)		Aggregate Surfacing	2118 2211.5	1 / 1,000 CY (CV) stockpile gradation only required for materials on hand. Spec 1906.2	> 250 yd ³ (CV) or 500 Tons and < 2000 yd ³ (CV) or 4000 tons. Material is a minimum of one lot (5). Test two random samples from each lot and average. > 2000 yd ³ (CV) or 4000 Tons. Divide into lots with lot size (5) no greater than 2000 yd ³ (CV) or 4000 Tons. Test two random samples from each lot and average. Determine individual results and lot averages for compliance (Table 2211-4 & 2211-5)	1/source 30 lb.
		Aggregate Base	2211 2211.5			
		Shoulder Base Aggregate	2221 2211.5			
		Drainable Aggregate Base (OGAB & DSB)	2212 3136			
		Granular and Select Granular Material (borrow/embankment)	3149.2B	1/10,000 CY - req'd for mat'l on hand, Spec 1906.2	1/40,000 yd ³ (CV)	1/source 30 lb.
		Stabilizing Aggregate	3149.2C			
		Reclamation FDR	3135.2B	None	Test at Engineer's discretion. Look for oversize FDR, after the motor grader has overturned the material.	None
		Granular Filter	3601.2B	1/source - before delivery on the project.	1/ source	1/source 30 lb.
		Backfill Materials	3149.2D			
		Granular Bedding	3149.2F			
		Aggregate Bedding	3149.2G			
		Coarse Filter Agg.	3149.2H			
		Filter Aggregate	3149.2J			
	Sand Cover	3149.2K				
Proctor	* Specified Density	Non-Granular Material per 2105.3F		None	1 per major soil, subgrade prep specified density requires 100% of proctor density.	1 sample 25 lb.
Sand Cone		Non-Granular Material per 2105.3F	2105 2106 3149	AGENCY TESTING: Roadway Embankment: One test per 4,000 yd ³ (CV) <u>or if test rolled, One test per 10,000 yd³ (CV)</u> , Transverse culverts & abutments: 1 test per every 2 feet of fill per 250' of trench length. Structures Trenches: 1 test/500 feet of each structure length at various depths. Subgrade Preparation: One per 25 road stations.		
Penetration Index Method (DCP) *		Aggregate Base	3138 2211.3C	None	1 DCP tests per 500 yd ³ (CV) or 1 per 1000 Tons. If test rolled, 1 test / 1,500 yd ³ (CV) or 3000 Tons.	None
		Shoulder Base Aggregate				
		Reclamation FDR & SFDR	3135.2B 2215.2C		1 DCP test per 3,000 yd ² . If test rolled, 1 test / 10,000 yd ³	
		Granular Materials Subgrade Preparation (for materials meeting 3149.2B1)	3149.2B	AGENCY TESTING: Roadway Embankment: One test per 2,000 yd ³ (CV) <u>or if test rolled, One test per 4,000 yd³ (CV)</u> Transverse culverts & abutments: 1 test per every 5 feet of fill per 250' of trench length. Structures Trenches: One test/500 feet of each structure length at various depths. Subgrade Preparation: One per 25 road stations.		

Grading and Base Construction Items (2 of 3)

	Material Type	Spec.*	Contractor / Producer QC Testing Rates	Minimum Required Agency QA Testing Rates	Verification Testing Sample
Moisture Content Test During All Compaction Methods (4)	*Aggregate Base, Shoulder & Surfacing	3138	None	1 / 1,000 yd3 up to 10 Maximum	None
	Drainable Aggregate Base (OGAB & DSB)				
	Reclamation FDR	3135.2B	None	1 / 10,000 yd3	
	All Embankment Materials	3149 2105	None	1/10,000 yd3 up to 10 Maximum	
	Subgrade Preparation			1 per 25 road stations	
Percent Crushing	Particle Count (1)	1906.2	1 required for Mat'l on hand	1/source unless directed by Engineer, (required for 3138.2B & C, 3149.2C & G1, 3136.2B).	1/source
Quality	Aggregate Quality Tests	3138 3149 3601	1 required for mat'l on hand, Spec 1906.2	1/ source unless directed by Engineer	1/source 30lb
Depth Check	Reclamation FDR	3135.2B	1/1,000 feet of machine width.	1 per day unless directed by Engineer	
Test Rolling	Test Rolling (as directed in the special provisions)	2111	As directed by the Engineer the contractor will perform test rolling at the top of all <ul style="list-style-type: none"> • Subgrade • Base layers (2211) • Non Stabilized FDR (2215) • Granular layers not meeting the requirements of 3149.2B2 (2105 & 2106) • Minimum 12' width and 300' length. Agency to observe test rolling. 		

Verification Testing Samples are companion split samples to the QA sample:

- Companion gradation, proctor, QA crushing, aggregate quality samples not required 1,000 tons or less.
- Include the laboratory companion with the first field sample.
- Include the field sample results with the laboratory sample.
- Laboratories with AMRL Accreditation are not required to submit laboratory companion samples.
- Carbonate aggregate materials require 50 lb. samples for the laboratory testing.

NOTES:

- (1) Percent crushing test is not required when the material is crushed from a quarry or contains 25% or greater recycled materials.
- (2) Submit a laboratory companion to the first Acceptance Gradation sample for a bituminous extraction, see 3138.2C. Full Depth Reclamation samples are not required.
- (3) The Certification of Aggregates and Granular Materials procedure and documentation of testing locations is at the discretion of the Engineer.
- (4) For quality compaction per spec 2105.3F2, test at Engineer's discretion.

Grading and Base Construction Items (3 of 3)

* Review the Special Provisions. The Grading and Base Manual allows the nuclear density gauge, see pages 60 and 65.

NOTES:

(5) Lot sizes may be adjusted by the Engineer. This may be good practice if parts of the project are taking place in separate areas or at separate times, such as many turn lane or excavation areas or separate project stages.

Conversions: 1 ton = 0.55 yd³ (CV), 1 ton = 0.7 yd³ (LV), 1 yd³ (CV) = 1.8 tons.

Contact the MnDOT District IA Inspector to provide servicing of your Federal Aid Project.

Less than 500 tons (250 CY) may be accepted by the Engineer without testing.

Guidelines for Required Crushing & Aggregate Quality Tests

	3149 Granular Materials	3138 Aggregate for Surface and Base	3136 Drainable Bases
Crushing	Yes, for Stabilizing Aggregate, Fine Aggregate Bedding and Medium Filter Aggregate. Test waived if material contains recycled at twice the minimum crushing requirement. Not required for quarried sources.	Yes , for Class 5, 5Q & 6. Test waived if material contains recycled at twice the minimum crushing requirement. Not required for quarried sources. Class 2 must contain 100% crushed quarry rock.	Yes . Not required for quarried sources.
Bitumen Content	At the discretion of the Engineer	At the discretion of the Engineer	Not applicable
LAR	Not applicable	Yes , if source is carbonate quarry and does not contain bitumen.	Yes
Insoluble Residue	Yes , if source is carbonate quarry and does not contain bitumen.	Yes , if source is carbonate quarry and does not contain bitumen.	Yes , if source is carbonate quarry.
Litho Exam & Shale Float Test	Yes , for Medium Filter Aggregate	Yes , for Class 3, 4, 5, 5Q & 6, when not from quarried rock, and does not contain bitumen.	Yes , when not from a quarried source.

Testing procedures in the [Grading & Base Manual](#).

Forms and worksheets at the [Grading & Base website](#).

Gradation worksheets at the [SALT Construction website](#).

Certified Ready-Mix Concrete (2 of 3)

The Prime Contractor is responsible to assure that all ready-mix concrete used is produced by an annually Certified Ready-Mix plant as detailed in Specification 2461.3F.

Spec.	Test Type	Agency QA Testing Rates (1)	Form
bridge 2406.2 2411.2 2461.2 2461.3 general 2301** 2452.2 2461.2 2461.3 2506.2 2511.2 2514.2 2520.2 2521.2 2531.2 2533.2 2545.2 2554.2 2557.2 2564.2 2565.2	Concrete Field Testing Rates	<p style="text-align: center;"><u>General Concrete Grades F, G, M, P, and R:</u> 1 set of 3 cylinders per 300 yd3 per mix per day.</p> <hr/> <p style="text-align: center;"><u>Bridge Concrete Grades B, S, and Y:</u> 1 set of 3 cylinders per 100 yd3, then 1 set of 3 cylinders per 300 yd3 per mix per day</p> <hr/> <p style="text-align: center;">Agency will break 1 set of 3 cylinders at 28 days. Agency will cast up to 3 control cylinders, any additional control cylinders are the responsibility of the Contractor.</p> <hr/> <p style="text-align: center;">Cellular Concrete: 1 set of 4 cylinders (28 days) per day, fill in 2 equal lifts, <u>do not rod</u>, lightly tap the sides, cover and move to area with no vibration. Do not disturb for 24 hours.</p>	2409 Concrete Cylinder ID Card

NOTES:

(1) Review the requirements of 2461.3F Certified Ready-Mix Concrete, 2461.3G Concrete Placement and 5-694.010 Inspector’s Checklist in the Concrete Manual.

***Small Quantity Requirements** are for less than 20 yd3 per week. Plant monitoring is not required but **Concrete Field Testing is required.**

****Concrete Pavement:** Use Certified Ready-Mix Concrete testing rates when: a) The entire concrete paving project is less than 3,500 cu. yd. b) When a secondary plant is used to provide minor work.

Contact the MnDOT District IA Inspector to provide servicing of your Federal Aid Project.

Agencies using MnDOT Metro Inspection Services will be sampled at the current MnDOT Schedule of Materials Control rates and will be billed accordingly.

Certified Ready-Mix Concrete (3 of 3)

The Prime Contractor is responsible to assure that all ready-mix concrete used is produced by an annually Certified Ready-Mix plant as detailed in Specification 2461.3F.

Guidelines

- The testing rates shown in this Schedule of Materials Control are minimums. Take as many tests as necessary to ensure quality concrete. Should circumstances arise on a project which makes the testing rate impractical, contact the Concrete Engineering Unit.
- All samples shall be taken in a random manner using an appropriate number generator.
- The first load of concrete for any pour must have passing air content and slump results, prior to placing.
- If batching or field adjustments are made, test the adjusted load for air content and if suspect, slump, before it gets into the work. The Engineer will determine if additional testing is required after each water adjustment made during slip form placement. Continue to test for air content and slump, if suspect, when test results are inconsistent or marginal.
- If any field test fails, reject the concrete or if the Producer makes adjustments to the load to meet requirements, record the adjustments on the Certificate of Compliance. Retest the air content of the load, slump if required, and record the adjusted test results. Test the next load for air content and slump, if required, before it gets into the work.
- Material not meeting requirements shall not knowingly be placed in the work. If failing concrete inadvertently gets placed in the work, review either the MnDOT Standard Specifications for Construction or contact the Concrete Engineering Unit for monetary deduction recommendations.

Best practices

- It is recommended that the Agency Plant Monitor be present during critical pours, such as superstructure or paving concrete (i.e. 3A21, S mixes, JMF mixes).
- It is recommended that the Agency representative continually monitor the progress of all concrete pours in the field and review Certificate of Compliances. It is not a recommended practice to only perform minimum testing requirements and leave the pour.
- It is recommended to make standard strength cylinders after the first load of concrete unless that is the only load of concrete for that mix that day.
- The Agency is responsible for verification sampling. For safety and consistency in sampling and splitting of the sample, it is recommended that the agency and the producer/contractor obtain the verification sample in tandem. This will allow the producer/contractor to witness the sampling process and take possession of the verification companion.

Concrete Plant and Field Materials

All materials must come from certified or qualified sources. All certified source must state so on the delivery invoices. The most current list of certified/approved sources can be found at MnDOT Material website. Materials listed on the Approved/Certified Products List are not required to be sampled, but need to be listed on the Material Acceptance Summary detailed in the SALT SMC. Samples can be submitted as directed by the Engineer.

	Material	Spec. No.	Agency QA Field Sampling Rate	Form No.
Concrete Plant Batching Materials	Portland Cement	3101	Shall be a Certified Supplier - For certified ready-mix and concrete paving sample rates: 1 sample when the plant is certified. Take additional samples at 6 months if producing Agency concrete, if the plant changes sources or as the contract requires. The producer obtains a 5 lb. sample and stores the sample in a sealed container provided by the Agency and includes the supplier's delivery invoice from which the sample is obtained.	24300 ID Card Cement Samples
	Slag	3102		
	Blended Cement	3103		
	Fly Ash	3115		24308 Fly Ash
	Admixtures (Acceleration, Retarding, Water-Reducing, Air-Entraining, etc.)	3113	For all concrete: 1 sample in a 1/2 pint plastic container provided by the Agency when the plant is certified. Take additional samples at 3 months if producing Agency concrete, if the plant changes sources or as the contract requires. The Producer should agitate the admixture tank prior to obtaining samples form dispensing tubes and store the samples in sealed plastic containers provided by the Agency.	2410 Sample ID Card
	Water	3906	1 sample in a 1 gallon clean glass or plastic container from a questionable source.	
Concrete Field Materials	Preformed Joint Filler	3702	Visual Inspection	2410 Sample ID Card
	Preformed Elastomeric Type	3721	1 per lot. Only materials from a qualified sources. Link to Approved Products List.	
	Silicone Joint Sealer	3722		
	Hot Poured Elastomeric Type	3723 3725		
	Burlap	3751	Visual Inspection	
	Colored Concrete Membrane Curing Compound	3752	Visual Inspection - Use only from qualified source.	
	Membrane Curing Compound	3753 3754 3755	Visual Inspection - Use only pre-approved curing compounds.	
	Plastic	3756	Visual Inspection - Must be white opaque and free from holes.	
	Refer to the "Metals" schedule for sampling requirements for concrete reinforcement.			

Agencies using MnDOT Metro Inspection Services will be sampled at the current MnDOT Schedule of Materials Control rates and will be billed accordingly.

Concrete Pavement – Agency (1 of 2)

Test Type (concrete manual)	Spec.	Concrete Paving Batch Plant Agency QA Testing	Certified Ready-Mix Plant Agency QA Testing	Form
Gradation (1) (5-694.145) (5-694.148)	3126 3131 3137	Daily Concrete Quantity > 100 yd ³ Agency QA Testing Rates: Verification only Verification Sample:- , *1 per fraction per source per day, split and tested by both Agency and Contractor	Weekly Concrete Quantity > 20 yd ³ Agency QA Testing Rates: Verification only Verification Sample:- , *1 per fraction per source per week, split and tested by both Agency and Contractor	21764 Agg Work sheet
Aggregate Moisture - QC Verification (2) (5-694.142)	3126 3131 3137	If w/c incentives apply: 1 per 1000 yd ³ or every 4 hours, whichever is greater. Take initial sample within the first 250 yd ³ .	If w/c incentives apply: 1 per 200 yd ³ or every 4 hours, whichever is greater. Take initial sample within the first 100 yd ³ .	Concrete W/C Ratio Work sheet
Water Content, Microwave Oven Verification (3) (5-694.532)	Concrete Manual	Take initial sample within the first 250 yd ³ . At least one additional verification test should be taken if more than 1000 yd ³ is produced in a day.	Take initial sample within the first 100 yd ³ . At least one additional verification test should be taken if more than 400 yd ³ is produced in a day.	
Coarse Aggregate, -200 sieve (5-694.146)	3131 3137	1 randomly selected sample on the first day of production and each time the Contractor mobilizes the plant, changes the aggregate sources, or the cleanliness of the coarse aggregate is in question, then 1 per week randomly thereafter. -200 test may be performed at the lab instead at the plant at the discretion of the Engineer.		21764 Agg Work sheet
Coarse and Fine Aggregate Quality (4)	3126 3131 3137	During concrete production: 1 randomly selected test each fraction every 20,000 yd ³ of production. Split the Quality sample 4 ways: 1) Provide 2 quarters of the sample to the producer/contractor. 2) Test the -200 on the coarse aggregate at the plant the day it was sampled. 3) Submit the remaining sample to the lab for quality testing including testing the -200 sieve on the coarse aggregate.		2410 Sample ID Card
Alkali Silica Reactivity (ASR) Testing	2301	1 per paving project per sand source. Provide one 5 lb. sample of: cement, supplementary cementitious material (fly ash or slag), and sand. Write "Project Specific ASR Testing" on all 3 sample cards. ASR Testing is not required if the entire project is less than 3,500 cubic yards.		2410 24300 24308
Coarse Aggregate Quality Testing of Incentive / Disincentive	3137	If coarse aggregate quality incentives apply: Test the Class B aggregates for % absorption and Class C aggregates for % carbonate including any other test necessary to make those determinations. Sample the 2 largest fractions in accordance with the following table and 2301:		Coarse Agg Quality Incent / Disincent Work sheet
		Coarse Aggregate Quality Incentive/Disincentive Sampling Rates		
		Plan Concrete Cubic Yards	Samples per fraction	
		3,500 - 7,500	3	
		7,501 - 10,000	5	
		10,001 - 25,000	10	
25,001 - 50,000	15			
50,001 +	20			

*Use Certified Ready-Mix Concrete testing rates when: a) The entire concrete paving project is less than 3,500 cu. yd. b) When a secondary plant is used to provide minor work.

Agencies using MnDOT Metro Inspection Services will be sampled at the current MnDOT Schedule of Materials Control rates and will be billed accordingly. Contact the MnDOT District IA Inspector to provide servicing of your Federal Aid Project.

Concrete Pavement – Agency (2 of 2)

Test Type	Spec.	Concrete Field Testing - Agency QA Testing	Form
Air Content before consolidation	Review Concrete Manual Website	1 correlation air test per day	2448 Weekly Concrete Report
Air Content after consolidation		1 correlation air test per day	
Slump		For fixed form placement: 1 slump test per day. For slip form placement: No slump testing required.	
Concrete Temperature		Record temperature each time air content, slump or strength test specimen is performed/fabricated by the Agency.	
Flexural Strength		Supply beam boxes, cure, and test beams. MnDOT standard beam box size is 6" x 6" x 20" unless others are approved by the Concrete Engineer.	2162 Test Beam Data
Concrete Pavement Texture		Determine texture testing locations using random numbers.	Probing, Coring, Texture and MIT-Scan T2 Report
Thickness		Determine probing and coring locations using random numbers. Initial pavement at core locations and re-initial the sides of specimens after coring to clearly verify their authenticity.	
Surface Smoothness/ Dowel and Tie Bar Steel Location			Observe Contractor Testing when possible

NOTES:

(1) All gradation samples shall be taken in the presence of the Agency, unless otherwise authorized by the Engineer. All samples shall be taken off the belt leading to the weigh hopper unless otherwise approved by the Engineer. All gradations and quality tests require companion samples. If Coarse Aggregate Quality Incentive / Disincentives apply: The Agency may also use the QA samples for incentive / disincentive testing. Notify the Contractor/Producer to double the QC/QA sample size. If well-graded aggregate incentives apply: Use the Contractor's gradation results for well-graded aggregate incentive calculations as verified by Agency testing. Use the Well-graded Concrete Agg. Worksheet.

(2) If w/c incentives apply: Use aggregate moisture results for determining the water content to calculate the w/c incentive/disincentive. Use the Concrete W/C Ratio Calculation Worksheet and do not leave sample unattended.

(3) If w/c incentives apply: Microwave oven verification testing to verify the w/c ratio is completed in conjunction with Agency aggregate moisture testing. Do not leave samples unattended.

(4) Prior to concrete production: Obtain pre-production samples for quality testing at least 16 hours prior to concrete production. Samples may be taken from the stockpile and -200 test may be performed at the lab instead at the plant at the discretion of the Engineer. If the entire project is <3,500 yd³, pre-production sampling is not required.

Minimum Aggregate Sample Size				
*companion required, double sample size				
Aggregate Size	Gradation*	Quality*	Moisture	% -200 C.Agg
3/4" Plus, #4	25 lb.	50 lb.	2000 g	12 lb.
3/4" Minus, #67	10 lb.	30 lb.	2000 g	6 lb.
#7, CA-70	6 lb.	30 lb.	2000 g	6 lb.
CIA, FIA	1000 g	30 lb.	500 g	1000 g
CS, FS	500 g	30 lb.	500 g	500 g
CA-80, #89	1.1 lb. (500 g)	30 lb.	500 g	500 g
Fine Aggregate	1.1 lb. (500 g)	30 lb.	500 g	-

Concrete Pavement – Producer/Contractor (1 of 2)

Test Type (concrete manual)	Spec.	Concrete Paving Batch Plant Contractor/Producer QC Testing	Certified Ready-Mix Plant Contractor/Producer QC Testing	
Gradation (1) (5-694.145) (5-694.148)	3126 3131 3137	When > 250 yd ³ produced/ day: 1 per 2500 yd ³ per fraction per source	When 20-400yd ³ produced/ day: 1 per fraction per source. If over 400 yd ³ per day, take a second gradation after the total exceeds 400 yd ³	
Coarse Aggregate -200 sieve (5-694.146)	3131 3137	Test the first sample then at least 1 of the next 3 samples on the first day of production and each time the Contractor mobilizes the plant, changes the aggregate sources, or the cleanliness of the coarse aggregate is in question, then 1 per day randomly thereafter. Test these samples at the plant.		
Aggregate Moisture QC Verification (2) (5-694.142)	3126 3131 3137	If w/c incentives do not apply: 1 per 1000 yd ³ , or 1 completed every 4 hours, whichever is the higher sampling rate.	If w/c incentives do not apply: 1 completed every 4 hours.	
Water Content, Microwave Oven Verification	Review Concrete Manual	If w/c incentives apply: Obtain the plastic concrete sample at the plant. See Concrete Manual (5-694.532)		
Unit Weight QC		Test one load of concrete per day at the plant. See Concrete Manual (5-694.542)		
Air Content QC (5-694.541)		Test the first load of concrete at the plant		
Coarse and Fine Aggregate Quality	3126 3131 3137	Prior to concrete production: Test the Agency's pre-production sample at the Contractor's discretion. During concrete production: Test the -200 on the quality companion sample the day it was sampled. All other testing is at the Contractor's discretion.		
Coarse Aggregate Quality Testing for Incentive / Disincentive	3137	Test at the Contractor's discretion.		
Minimum Aggregate Sample Size				
*companion required, double sample size				
Aggregate Size	Gradation*	Quality*	Moisture	% -200 C.Agg
3/4" Plus, #4	25 lb.	50 lb.	2000 g	10 lb.
3/4" Minus, #67	25 lb.	30 lb.	2000 g	6 lb.
#7, CA-70	6 lb.	30 lb.	2000 g	6 lb.
CAI, FIA	1000 g	30 lb.	500 g	1000 g
CS, FS	500 g	30 lb>	500 g	500 g
CA-80, #89	1.1 lb. (500 g)	30 lb.	500 g	500 g
Fine Aggregate	1.1 lb. (500 g)	30 lb.	500 g	-

Contact the MnDOT District IA Inspector to provide servicing of your Federal Aid Project.

* Use Certified Ready-Mix Concrete testing rates when: a) The entire concrete paving project is less than 3,500 cu. yd. b) When a secondary plant is used to provide minor work.

Concrete Pavement – Producer/Contractor (2 of 2)

NOTES:

(1) Performing testing on representative material at the end of the most recent day of production is allowed. If well-graded aggregate incentives apply: Use the Contractor's gradation results for well-graded aggregate incentive calculations as verified by Agency testing.

(2) Complete the initial moisture content and adjust the batch water prior to the start of concrete production each day. If weather conditions allow, performing moisture testing on representative material at the end of production the prior evening is allowed.

Test Type	Spec.	Concrete Field Testing - Contractor QC Testing
Air Content before consolidation for Type 3 concrete	Review Concrete Manual Website	1 per 300 yd ³ or 1 per hour, whichever is less. Test first load each day per mix.
Air Content after consolidation for Type 3 concrete		Test 1 air content per 1/2 day per mix of slip form paving to establish an air loss correction factor (ACF). See Special Provisions for additional information.
Slump		For fixed form placement: 1 per 300 yd ³ and as directed by the Engineer. Test first load each day per mix. For slip form placement: No slump testing required.
Concrete Temperature		Record temperature each time air content, slump or strength test specimen is performed/fabricated by the Contractor.
Flexural Strength		1 beam (28 day) per day per mix. Make additional control beams as necessary. Control beams shall be made within the last hour of concrete poured each day. Fabricate beams, deliver beams to curing site, and clean beam boxes. Cylinders may be substituted for beams at the discretion of the Engineer.
Concrete Pavement Texture		Perform texture testing at locations determined by the Engineer in accordance with the Contract. All adjoining lanes shall be tested at the same location if paved at the same time. The Contractor supplies all materials necessary to perform the required testing.
Thickness		The Contractor drills concrete cores at locations determined by the Agency. The Contractor probes the plastic concrete at locations determined by the Agency.
Surface Smoothness		Contractor provides MnDOT certified inertial profiler results for the entire project as required by the contract. Check for current certification. Perform profiling in the presence of the Engineer unless otherwise approved.
Dowel Bar and Tie Bar Steel Location		<p style="text-align: center;">For Concrete projects greater than 3500 yd³.</p> <p>On the first day and each day of slip form paving: (1) Verify the adequacy of the dowel bar anchoring by scanning seven random doweled contraction joints in each subplot. (2) Verify the presence and alignment of tie bar steel by scanning 75 lin. Ft. in each subplot.</p> <p>If the Engineer determines the first days dowel bar anchoring and tie bar placement processes are acceptable, the Engineer may allow a reduction in scanned joints in each subplot as follows: (1) Verify the adequacy of the dowel bar anchoring by scanning four random doweled contraction joints per subplot. (2) Verify the presence and alignment of tie bar steel by scanning 25 lin. ft. out of every subplot.</p>

Contact the MnDOT District IA Inspector to provide servicing of your Federal Aid Project.

Concrete Wearing Course for Bridges

Test Type (concrete manual)	Spec.	Contractor/Producer QC Testing	Agency QA Testing	Form
Gradation, Quality, Coarse Agg -200 QC/Verification (5-694.145) (5-694.146) (5-694.148)	3126 3137	Prior to production, provide the Agency with: Aggregate pit numbers, 1 passing gradation result per fraction per source. Test Agency companion samples are Contractor's discretion.	1 per fraction prior to production and each time aggregate is delivered to the site.	2410 Sample ID Card
Air Content - Type 3 Concrete (Verification) (5-694.541)	Review Concrete Manual Website	None	1 per 15 yd ³ , Test at beginning of pour each day.	Weekly Report of Low Slump Concrete
Slump (Verification) (5-694.531)		None	1 per 15 yd ³ , Test at beginning of pour each day. Allow mix to hydrate 5 minutes before slump test to assure all cement is saturated.	
Compressive Strength (5-694.511)		None	1 cylinder (28 day) per 30 yd ³	2409 Cyl. ID Card

Test	Minimum Sample Size *companion req'd, double sample size	
	Gradation	6 lb. for # 7, 500 g for CA-80
Quality	30 lb. for Coarse Aggregate	30 lb. Fine Aggregate

Contact the MnDOT District IA Inspector to provide servicing of your federal aid project.

Concrete Pavement Repair – CPR for 3U18

Test Type	Spec.	Contractor/Producer QC Testing	Agency QA Testing	Forms
Gradation, Quality, Coarse Agg -200	3126 3137	Prior to production, the Contractor shall provide the Agency with: Aggregate pit numbers, 1 passing gradation result per fraction per source. No quality test results are required. Test companion samples at Contractor's discretion.	Gradation: 1 per aggregate fraction prior to production and each time aggregate is delivered to the site. Quality Testing & Coarse Agg -200: 1 test per aggregate fraction per source. The Agency may use the gradation results for the Quality Samples as a substitute for 1 required field gradation.	2410 Sample ID Card
Air Content - Type 3 Concrete	Review Concrete Manual Website	None	1 per 15 yd ³ , Test at beginning of pour each day.	21412 Weekly Report of Low Slump Concrete
Slump		None	1 per 15 yd ³ , Test at beginning of pour each day. Allow mix to hydrate 5 minutes before slump test to assure all cement is saturated.	
Compressive Strength		None	1 cylinder (28 day) per 30 yd ³	2409 Cyl. ID Card

Test	Minimum Sample Size *companion req'd, double sample size	
	Gradation	6 lb. for # 7, 500 g for CA-80
Quality	30 lb. for Coarse Aggregate	30 lb. Fine Aggregate

Contact the MnDOT District IA Inspector to provide servicing of your federal aid project

Dowel Bar Retrofit – (DBR)

Test Type	Spec.	Contractor/Producer QC Testing	Agency QA Testing	Form
Gradation, Quality, Coarse Agg -200	3126 3137	Prior to production, the Contractor shall provide the Agency with: Aggregate pit numbers, 1 passing gradation result per fraction per source. No quality test results are required. Test companion samples are Contractor's discretion.	1 per fraction prior to production and each time aggregate is delivered to the site.	2410 Sample ID Card

Test Type	Spec.	Agency QA Testing	Form
DBR Material Compressive Strength	Review Concrete Manual	Contractor Testing: None	2409 Cylinder ID Card
		<p>Agency Testing: During the pre-production test operations: 1 set of 3 cylinders tested at a rate as directed by the Engineer. Testing may need to be repeated if any problems with the dowel bar retrofit material are encountered. First day of production: 1 set of 3 cylinders at a rate directed by the Concrete Engineer. After the first day of production: 1 cylinder per day during production tested at a rate determined by the Engineer to determine traffic strength.</p>	

Test	Minimum Sample Size *companion req'd, double sample size	
Gradation	500 g for # 89 & Sand	
Quality	30 lb. Coarse Aggregate	30 lb. Fine Aggregate

Contact the MnDOT District IA Inspector to provide servicing of your federal aid project.

Landscaping and Erosion Control Items

Kind of Material	Spec. #	Minimum Required Agency QA Acceptance Testing (Field Testing Rate)
Manufactured Topsoil Borrow, Salvaged Topsoil (stockpiled)	3877.2	As directed by the Engineer
Plant Stock & Landscape Materials	3861 and 2571.2A1	Materials must be in accordance with the Inspection and Contract Administration Guidelines for MnDOT Landscape Projects of which determines the minimum and maximum criteria thresholds. Certificate of Compliance, Nursery stock certificate registered with MN Dept. of Agriculture. Out of state products subject to pest quarantines must be accompanied by documentation certifying all products are free of regulated pests.
Erosion Control Blanket	3885	Visual Inspection and Check approved products or approved vendors list - As directed by the Engineer.
Erosion Control Netting	3885	
Silt Fence	3886	
Erosion Stabilization Mat	3885	
Flotation Silt Curtain	3887	Accepted, based on manufacturers certification of compliance. Check weight of fabric.
Filter Logs	3897	Visual Inspection
Flocculants	3898	Obtain copy of Certificate of Compliance and MSDS
Fertilizer	3881	Obtain copy of invoice of blended material stating analysis.
Agricultural Lime	3879	Contractor must supply amount of ENP (Equivalent Neutralizing Power) for each shipment.
Mulch - Type 3	3882	Certified Weed Free (Certified sources only) Check for Certified Vendor tag from Minnesota Crop Improvement Association (MCIA).
Mulch - Type 6 - Woodchips		All wood chips supplied by a supplier outside the Emerald Ash Borer quarantine area or have an Emerald Ash Borer Compliance Agreement with the MDA
Seeds	3876	(Certified Vendors Only) (Mixes 100-299) Check for Certified Vendor tag from Minnesota Crop Improvement Association (MCIA).
Native Seed		(Mixes 300-399) certified seed only. Check for Certified Vendor tag from Minnesota Crop Improvement Association (MCIA).
Sod	3878	Visual Inspection - Check approved products list - As directed by the Engineer. Check for Certified Vendor tag from Minnesota Crop Improvement Association (MCIA) for salt tolerant sod.
Compost (from Certified Source)	3890	
Compost (from Non-Certified Source)		
Hydraulic Soil Stabilizer	3884	Check Approved/Qualified Products List - As directed by the Engineer.

Chemical Items

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate)
Asphalt Plank	3204	Visual Inspection - As directed by the Engineer.
Calcium Chloride	3911	Review the percentage required as per specification. Check for listing on Qualified Products website.
Magnesium Chloride	3912	
Hot-Pour Crack Sealant (for Crack Sealing/Filling)	3719 3723 3725	Retain Certification of Compliance. Check for listing on Qualified Products website.
Pavement Joint Adhesive	Special Provisions	Retain Certification of Compliance
Waterproofing Materials		
Membrane Waterproofing System	3757	Visual Inspection - Check qualified products list.
Waterproofing Materials - Three Ply System		
Asphalt Primer	3165	Verify supplied material meets ASTM D 41
Waterproofing Asphalt	3166	Verify supplied material meets ASTM D 449
Fabric	3201	Verify supplied material meets ASTM D 41
Paints		
Waterborne Latex - Traffic Paint	3591	Visual Inspection - Check qualified products list - retain Certificate of Compliance.
Epoxy Traffic Paint	3590	
Traffic Marking Paint	Special Provisions	
Non-Traffic Striping Paints	3500 Series	Retain Certification of Compliance
Bridge Structural Steel Paint	3520	Visual Inspection - Check approved products list - retain Certificate of Compliance.
Exterior Masonry Paint	3584	
Noise Wall Stain	Special Provisions	
Drop-on Glass Beads	3592	Visual Inspection - Check qualified products list. Retain Certificate of Compliance.
Pavement Marking Tape	3354	Visual Inspection - Check qualified products list. Retain Certificate of Compliance.
	3355	
	Special Provisions	
Signs and Markers	3352	Visual Inspection - Check qualified products list.

Metals (1 of 2)

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate) *
Guard Rail		
Fittings - Splicers, Bolts, Posts etc.	3381	Visual Inspection - Materials shall be approved before use. Call MnDOT inspector at 218-846-3613 to see if material has been approved.
Structural Plate Beam	3382	
Non-High Tension Guard Rail Cable	3381	
High Tension Guard Rail Cable	Special Provisions	
Steel Posts		
Steel Sign Posts	3401	Visual Inspection - As directed by the Engineer. Retain Certificate of Compliance in Project file.
Fence Posts, Brace Bars, Rails and others	3403	Visual Inspection - As directed by the Engineer. Retain Certificate of Compliance and certified mill analysis in project file.
	3406	
	3379	
Fence		
Barbed Wire	3376	Visual Inspection Retain Certification of Compliance, As directed by the Engineer.
Woven Wire		
Chain Link Fabric		
Components: cup, cap, nut, bolt, end clamp, tension band, truss rod tightener, hog ring, tie wire, tension stretcher bar, truss rod, clamp & tension wire		
Gates		
Pipe		
Water Pipe and other Piping Materials	3364, 3365, 3366 & Special Provisions	Visual Inspection - As directed by the Engineer.
Reinforcing Steel - Inspected by MnDOT & will be charged back to the Local Agency.		
Uncoated Bars	3301	Retain Certificate of Compliance & Certified Mill Analysis
Epoxy Coated Bars	3301	For Epoxy-Coated bars, steel will be tagged "Inspected" when it has been sampled and tested by Mn/DOT prior to shipment, & it will be tagged "Sampled" when testing has not been completed prior to shipment. If the Epoxy-Coated bars are not tagged "Sampled" or "Inspected", submit samples (1 bar 3ft long for each size for each day's coating production), Certificate of Compliance, & Certified Mill Analysis for testing. Maintain original Cert. of Compliance & Certified Mill Analysis in project file.
Spirals	3305	
Stainless Steel Bars	Special Provisions	Visual Inspection Testing as directed by the Engineer (2 bars 3 ft. long per heat per bar size). Certified Mill Test Reports to be filed.

Metals (2 of 2)

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate) *	
Reinforcing Steel - Inspected by MnDOT & will be charged back to the Local Agency.			
Steel Fabric	3303	2 sq. ft. if epoxy coated.	Visual Inspection - Retain Certificate of Compliance.
Dowel Bars	3302	One dowel bar and basket from each shipment.	
Prestress/Post Tension Strands	3348 Spec Prov	One sample of 2 strands by 6 ft. from each heat/production lot.	
Castings			
Drainage Castings	3321 2471	Visual Inspection - Check approved / qualified list.	
Electrical	2565		
Anchor Rods (Cast in Place) and Structural Fasteners	3385 3391	Visual Inspection - Check approved / qualified list. Testing as directed by the Engineer (see notes below)	
<p>Notes: Manufacturer must have one yearly passing test from the Department for each anchor rod or bolt type. Prior to installation, obtain copy of MnDOT passing test report from supplier. Specs 3385.2 A, B, & C require anchor rod markings per ASTM F 1554 S3. The end of each anchor bolt intended to project from the concrete must be die stamped with the grade identification as follows: Grade 36 = AB36, Grade 55 = AB55, Grade 105 = AB105.</p>			
Anchorages (Drilled In)	Special Provisions	Visual Inspection - Check qualified products list.	
Structural Steel	Inspected by MnDOT & will be charged back to the Local Agency.		
Steel Bridge - Beams, Girders, Diaphragms, etc.	2471	Structural Metals Inspection Tag and field inspection for damage/defects, check dimensions for contract compliance. Review approved products list as directed by the Engineer. Note: Structural metals products will be inspected at the plant and will be shipped with a Structural Metals Inspection Tag. An inspection confirmation report will be completed by Structural Metals Inspection staff and sent to the field personnel. Only approved suppliers are allowed to supply Structural Metals products. A list of approved suppliers can be found on the Bridge Office website .	
Concrete Girders-Diaphragms and sole plates			
Expansion Joints			
Steel Bearings			
Railing-Structural tube and ornamental			
Drainage Systems			
Protection Angles			
Overhead Sign structures	2564 2471		
High Mast Lighting Structures	2545 2471		
Monotube Signal Structures	2565 2471		

*Check domestic steel requirement under 1601 Special Provision.

Geosynthetics, Pipe, Tile, Precast/ Prestressed Concrete

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate)
Corrugated Metal Products		
Culvert Pipe Under drains Erosion control Structures	3225 thru 3229, 3351, 3399	Make certain pipe is Certified on Invoice, retain certificate of compliance and certified mill analysis in project file.
Structural Plate	3231	
Aluminum Structural Plate	3233	Retain the Certificate of Compliance and certifd mill analysis in project file.
Pipe		
Clay Pipe	3251	Visual Inspection
Reinforced Concrete Pipe and Arches, Precast Cattle Pass Units, Sectional Manhole Units	3236	Field Inspection: Check for damage and defects. Check dimensions and class as required.
Non-Reinfd Concrete Pipe	3253	
Drain Tile (Clay or Concrete)	3276	Visual Inspection - Acceptance as directed by the Engineer.
Thermoplastic (TP) Pipe ABS and PVC	3245	Obtain Certificate of compliance. Check for approved marking printed on pipe. Field Inspect for damage or defects.
Corrugated Polyethylene Pipe	3278	Check for markings (AASHTO M 252) Certificate of Compliance. Field Inspect for damage or defects.
Corrugated Polyethylene Pipe - Dual Wall 12"-48"	3247	Visual Inspection - Check approved products list. Obtain Certificate of Compliance.
Precast/Prestressed Concrete Structures - Inspected by MnDOT & will be charged back to the Local Agency.		
Reinforced Precast Box Culvert	3238	Field Inspection: Check for damage and defects. Check dimensions as required. Check for the "MnDOT" stamp and signature on the certification document.
Precast/Prestressed Concrete Structure (beams, posts, etc.)	2405	
Manholes and Catch Basins	2506 3622	
Sewer Joint Sealing Compound	3724	Visual Inspection - Acceptance as directed by the Engineer.
Preformed Plastic Sealer for Pipe	3726 Type b	Visual Inspection - Acceptance as directed by the Engineer.
Bituminous Mastic Joint Sealer for Pipe	3728	
EPS Geofoam	Special Provisions	Visual Inspection - Acceptance as directed by the Engineer. Check for yellow aged material, uniformity and dimensions.
Geotextile Fabric and Geogrid Reinforcement	3733 and Special Provisions	Obtain Certificate of Compliance stating minimum average roll values (MARV). MARV must meet Project requirements. Fabric must be listed on Geotextile Small Quantity Acceptance List .
Geotextile Small Quantity Acceptance List		
Silt Fence	3886	Visual Inspection - Check approved products list.

Electrical and Signal Equipment Items (1 of 2)

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate)
Lighting Standards (Aluminum or Steel)	3811	Visual Inspection - Obtain Certificate of Compliance. The Fabricator will submit "Certificate of Compliance," on a per project basis, to the Project Engineer.
Hand Holes (Precast, PVC, and LLDPE)	2545	Visual Inspection - Check approved/qualified products list. Traffic signal and street lighting projects require hand holes to be listed on the MnDOT Signals Approved Products List (APL). For cast iron frame and cover: see Metals - Drainage and Electrical Castings
	2550	
	2565	
Foundation	2545	Slump as needed, 1 cylinder per 25 cu. yds. Rebar is required in concrete foundations as specified in the Contract documents for all traffic control signals and roadway lighting projects.
Steel Screw In Foundations	2545 2565	See Approved/Qualified Products List for Roadway Lighting and Signals.
Conduit and Fittings		
Metallic	3801	Visual Inspection - Conduit shall be labeled as being listed by a National Recognized Testing Laboratory (NRTL). For traffic signal and street lighting projects, specific requirements are contained in the Special Provisions for each project.
	3802	
Non-Metallic (Rigid and HDPE)	3803	
	Special Provisions	
Anchor Rods and Bolts (Cast in Place)	3385	
Anchorages (Drilled In)	Special Provision	Visual Inspection - Check qualified products list.
Miscellaneous Hardware	2545 2565	Visual Inspection - Check approved products list. Will carry "Inspected" tag if sampled and tested prior to shipment. No sample necessary if "Inspected". Do not use if not tested. Field sample at sampling rate for laboratory testing. For traffic signal and street light lighting projects, various miscellaneous hardware is required to be listed on the MnDOT Signals and Lighting Approved Products Lists (APL). The Contract documents indicate, which items must be on the Signals and/or Lighting APL.

Electrical and Signal Equipment Items (2 of 2)

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate)
Cable and Conductors		
Power Conductors	3815.2B1	Visual Inspection - Make certain the conductors are the type specified. Submit Field Inspection report showing type and quantities used. Shall be labeled as being listed by a National Recognized Testing Laboratory (NRTL) and type where applicable.
Loop Detector Conductors (No Tubing)	3815.2B2 (a)	
Electrical Cables and Single Conductors with Jacket	3815.2B2(b) 3815.2B3	Visual Inspection - Usually inspected at the distributor. Documentation showing project number, reel number(s), & MnDOT test number(s) will be included with each project shipment. If such documentation is not received from Contractor, submit sample for testing along with material certification from manufacturer. Do not use if not tested. Pre-inspected materials will not be tagged; an inspection report will be sent by the MnDOT inspector for each shipment. Project inspectors should verify that the shipping documents agree with this inspection report. Call Steve Grover at 651-366-5540 or Cindy Schellack at 651-366-5543 with questions. For traffic signal and street lighting projects, the Special Provisions for each project contain electrical cable and conductor specifications.
	3815.2B5	
	3815.2C1 thru .2C8	
	3815.2C14	
Fiber Optic Cables	3815.2C13	Visual Inspection - Check approved products list for Traffic Management Systems.
Ground Rods	2545	Visual Inspection - Check approved products list. Shall be labeled as being listed by a National Recognized Testing Laboratory (NRTL). Detail materials on Materials Acceptance Summary.
	2565	
Luminaires and Lamps	3810	Visual Inspection - Check approved products list. Traffic signal and street lighting projects require luminaires and lamps to be listed on the MnDOT Lighting Approved/Qualified Products List (APL). The conductors shall be labeled as being listed by a National Recognized Testing Laboratory (NRTL) and type, where applicable.
Electrical Systems	2565	Electrical Systems are to be reported as a "System" using the LIGHTING, SIGNAL AND TRAFFIC RECORDER INSPECTION REPORT. To be certified by the Project Engineer.
Traffic Signal Systems	2565	Traffic Signal Systems are to be reported as a "System" using the LIGHTING, SIGNAL AND TRAFFIC RECORDER INSPECTION REPORT. To be certified by the Project Engineer.

Brick, Stone and Masonry Units

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate)
Brick		
Sewer (clay) and Building	3612 to 3615	Visual Inspection - Acceptance as directed by the Engineer.
Sewer (Concrete)	3616	Visual Inspection - Acceptance as directed by the Engineer. Air entrainment required. Obtain air content statement from supplier.
Concrete Masonry Units		
Sewer Construction	3621	Visual Inspection - Acceptance as directed by the Engineer. Air entrainment required. Obtain air content statement from supplier.
Modular Block Retaining Walls	Review Current Special Provisions	Visual Inspection - Note: All lots of block upon delivery shall have Manufacturer or Independent laboratory test results to verify passing both compression and freeze-thaw requirements. * Wall units and cap units are considered separate block types.
Reinforced Concrete Cribbing	3661	Visual Inspection - Acceptance as directed by the Engineer. Will be stamped when inspected prior to shipment.
Stone for Masonry or Rip-Rap	3601 and Special Provisions	Visual Inspection - Acceptance as directed by the Engineer.

Remarks: each source shall be approved by Project Engineer or supervisor for quality, prior to use. For questions on quality, contact District Materials or Geology Unit.

Miscellaneous Materials

Kind of Material	Spec. No.	Minimum Required Agency QA Acceptance Testing (Field Testing Rate)
Timber, Lumber Piling & Posts	3412 to 3471 & 3491	Visual Inspection - Acceptance as directed by the Engineer. Untreated materials shall be inspected in the field. Treated materials shall be Certified on the Invoice or Shipping Ticket. Material is inspected and stamped by an Independent Agency as per Specification 3491. Contact Laboratory for additional information.
Miscellaneous pieces and Hardware (Galvanized)	3392 3394	Visual Inspection - Acceptance as directed by the Engineer.
Insulation Board	3760	
Elastomeric Bearing Pads - Plain or Laminated	3741 and Special Provisions	Check dimensions. Check repair of tested pad. Obtain copy of Certificate of Compliance. DO NOT USE ANY PADS THAT ARE NOT CERTIFIED.
Cotton Duck Bearing Pads		

Approved/Qualified Products & Resources

Approved/Qualified Products

- [Asphalt Products](#)
- [Bridge Products](#)
- [Concrete Products](#)
- [Crack and Joint Material Products](#)
- [Drainage](#)
- [Erosion Control and Landscaping Products](#)
- [Geosynthetic](#)
- [Maintenance Shop Supplies](#)
- [Paint/Stain/Coating Systems \(Non-Pavement\)](#)
- [Pavement Markings](#)
- [Precast Concrete](#)
- [Roadside Barriers](#)
- [Roadway Lighting Products](#)
- [Signals Products](#)
- [Signing Products](#)
- [Snow and Ice Chemical Products](#)
- [Temporary Traffic Control Devices](#)
- [Traffic Management Systems/ITS](#)
- [Truncated Domes](#)
- [Vehicle Safety Lighting](#)
- [Walls \(Retaining/Noise\)](#)

Additional Resources

- [SALT Construction webpage](#)
- [Bituminous Engineering](#)
 - [Asphalt Binder Certified Supplier](#)
 - [Asphalt Emulsion Certified Supplier](#)
- [Concrete Engineering](#)
 - [MnDOT Concrete Manual](#)
 - [QC & QA RM Plant Workbooks](#)
 - [MnDOT Certified Ready-Mix Program](#)
- [Grading & Base Engineering](#)
 - Testing procedures in the [Grading & Base Manual](#)
 - Forms and worksheets at the [Grading & Base website](#)
 - Gradation worksheets on the [SALT Construction website](#)

Contacts

MnDOT Construction and Materials State Aid Contacts

Districts 1, 2, 3, 4

Ross Hendrickson, State Aid Construction Specialist

ross.hendrickson@state.mn.us

218-766-3745

Districts 6, 7, 8

Rollin Larson, State Aid Construction Specialist

rollin.larson@state.mn.us

507-205-6403

Metro

Michael Pretel, State Aid Construction Engineer

michael.pretel@state.mn.us

651-234-7778

Kyle Puent, State Aid Construction Liaison

kyle.puent@state.mn.us

651-234-7762

MnDOT Specialty Offices Contacts

Grading & Base

Terry Beaudry	Grading & Base Engineer	651-366-5456
John Bormann	Grading & Base Specialist	651-366-5496

Bituminous*

John Garrity	Bituminous Engineer	651-366-5577
Greg Johnson	Asst. Bituminous Engineer	651-366-5464
Greg Schneider	Asst. Bituminous Engineer	651-366-5403
Elliot Keyes	Pavement Preservation	651-366-5432
Deb Evans	Bituminous Engineer Specialist	651-366-5574
Ray Betts	Bituminous Trial Mix Lab Tech	651-366-5469

*See website for the contact list by topic

Concrete*

Maria Masten	Concrete Engineer	651-366-5572
Ron Mulvaney	Structural Concrete Engineer	651-366-5575
Rob Golish	Asst. Concrete Engineer	651-366-5576
Wendy Garr	Concrete Engineer Specialist	651-366-5423
Gordy Bruhn	Concrete Field Eng. Specialist	651-366-5523

*See website for the contact list by topic

Contacts for other materials can be found on the [Materials and Road Research Contacts webpage](#).

Contacts for Approved Products can be found at the [Approved/Qualified Products Contact webpage](#).

2019 SALT Schedule of Materials Control – Local Government Agency

Materials Lab. Contacts	Independent Assurance	
<p>District 1, Duluth Leila DeLuca, Wyatt Driskell, Cody Desmodt Phone: 218-725-2738 Lab Email D1.duluth.lab.dot@state.mn.us</p>	<p>Nadine Miller Phone: 218-725-2737 Cell: 218-348-6297 Nadine.miller@state.mn.us</p>	
<p>District 2, Bemidji Jeff Long, Phone: 218-755-6544 Jason Kissel, Phone: 218-755-6542 Fax: 218-755-6540</p>	<p>Thomas Lloyd Cell: 218-766-6949 Thomas.lloyd@state.mn.us</p>	
<p>District 3A, Baxter Tom Boser Phone: 218-828-5755 Fax: 218-828-5816</p>	<p>Matt Miles Phone: 218-828-5759 Cell: 218-232-6748 Matt.miles@state.mn.us</p>	
<p>District 3B, Saint Cloud Teresa Mertens Phone: 320-223-6555 Fax: 320-223-6582</p>	<p>Teresa Mertens Phone: 320-223-6555 Cell: 320-241-6290 Teresa.mertens@state.mn.us</p>	
<p>District 4, Detroit Lakes Brad Hanson, Phone: 218-846-3616 Bruce Bryngelson, Phone: 218-846-3614 Wayne Koons, Phone: 218-846-3617 Fax: 218-846-0744</p>	<p>David Brunner Phone 218-846-3613 Cell: 218-849-7393 David.brunner@state.mn.us</p>	
<p>Metro District, Maplewood Lab Mike Evans Phone 651-366-5409 Brent Scolley Phone 651-366-5410 Dave Wilkerling Phone 651-366-5424 Fax: 651-366-5408</p>	<p>Waters Edge Mat'ls (@state.mn.us) West Steve Reinardy (steve.reinhardy@) Mike Amiot (mike.amiot@) East Greg Bohmert (greg.bohmert@) Matt Herbst (matt.herbst@)</p>	<p>Phone: 651-234-7356 Phone: 651-755-1581 Phone: 651-775-1042 Phone: 651-775-1005 Phone: 651-775-1018</p>
<p>District 6, Rochester Ken DeCramer, Phone: 507-286-7580 Jeff Bale, Phone: 507-286-7586 Russ Smith, Phone: 507-286-7535 Fax: 507-285-7112</p>	<p>Ken Pickett Phone: 507-286-7584 Cell: 507-251-0138 Ken.pickett@state.mn.us</p>	
<p>District 7, Mankato Mark Schoeb, Phone: 507-304-6186 Scott Swanson, Phone: 507-304-6189 Fax: 507-304-6191</p>	<p>Mitch Jordahl Cell: 507-380-9619 Mitch.jordahl@state.mn.us</p>	
<p>District 8A, Willmar Jay Jorgensen, Phone: 320-214-6345 Fax: 320-214-6306 District 8B, Marshall Mark DeAustin, Phone: 507-537-2068 Fax: 507-537-3802</p>	<p>Jon Vlaminck Cell: 320-894-7409 Jon.vlaminck@state.mn.us</p>	

Sample Sizes

Lbs.

Bituminous	35	Aggregate for Gradation QC/QA
	80	for each plus #4 Aggregate Type for Quality Testing
	35	for each minus #4 Aggregate Type for Quality Testing
	80	for each RAP material for Quality Testing
	10	RAS (shingles) for Processsed Gradation and Quality Testing
	65	for Mix Properties (QC/QA) 3 full 6" by 12" cylinder molds for QA
	90	for TSR (QC/QA) 4 full 6" by 12" cylinder molds for QA
	90	for Aggregate Specific Gravity QC/QA
	-	1 quart of Asphalt Binder QA
	-	1/2 gallon for Asphalt Emulsion QA
Grading & Base	30	Aggregate for Gradation (Companion sample from 60 lb. split).
	25	Moisture Density Test – Proctor (Companion from 50 lb. split).
	30	Aggregate Quality/Percent Crushing Test - 1 per source
Ready-Mix Concrete	25	Gradation 3/4" plus
	10	Gradation 3/4" minus
	6	Gradation CA 70 & #7
	1	Gradation - Sand (500 g), CA 80, #89.
	4.4	Moisture Test Coarse Aggregate (2000 g)
	1.1	Moisture Test Fine Aggregate (500 g)
	50	Quality 3/4" plus - lab sample
	30	Quality 3/4" minus - lab sample
	30	Fine Aggregate - lab sample
	10	3/4" Plus for the -200 Coarse Aggregate Test (5000 grams)
	6	3/4" Minus for the -200 Coarse Aggregate Test (2500 grams)
	5	Cement, Blended Cement, Fly Ash
	-	1/2 pint plastic container for admixtures.

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APPENDIX C

MNDOT ATTACHMENTS DIV 5 - MNDOT

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DIVISION S - MnDOT

S-1 **CONTACT INFORMATION**

Direct questions about this Project, including pre-bid questions, to Lake County Engineer, Jason DiPiazza at Jason.DiPiazza@co.lake.mn.us and 218-834-8380

S-2 **EQUAL PAY**

SP2018-5

The Department cannot execute a contract in excess of \$500,000 with a business that has 40 or more employees on a single day during the prior 12 months in this state or a state where the business has its primary place of business, unless the business has an equal pay certificate or has certified in the Electronic Bid File that the business is exempt. Bidders may find more information on the Equal Pay Certificate Requirement at Minnesota Statutes Section 363A.44 or at this website:

<http://mn.gov/mdhr/certificates/apply-renew/equal-pay-certificate>

S-3 **COMPLIANCE WITH TAX LAW REQUIREMENTS**

REVISED 08/09/19

SP2018-7

The Department cannot make final payment to the Contractor until the Contractor demonstrates that it and all its subcontractors have complied with the Income Tax withholding requirements of Minnesota Statutes, section 290.92 for wages paid for work performed under the contract. To establish compliance, the Contractor must submit a “Contractor Affidavit” either online or in paper form (IC134) to the Minnesota Department of Revenue. The contractor will receive written certification of compliance when the Department of Revenue determines that all withholding tax returns have been filed and all withholding taxes attributable to the work performed on the contract have been paid. The Contractor must then provide this written certification to the Department to receive final payment.

Every subcontractor working on the Project must submit an approved “Contractor Affidavit” from the Minnesota Department of Revenue to the Contractor before the Contractor can file its own Contractor Affidavit. **The Contractor is advised to obtain the certification from each subcontractor as soon as the subcontractor completes work on the Project. Experience has shown that waiting until the project is complete to obtain the forms from all subcontractors is likely to result in significant additional work for the Contractor as it will be difficult or impossible to collect all forms.**

The Department of Revenue, in association with the Department of Employment and Economic Development, offers a free seminar to help contractors understand tax law requirements. The Department strongly urges the Contractor and all subcontractors to attend the “Employment Taxes & Employer Responsibilities Seminar” or similarly offered classes. You can find a schedule and more information on the Department’s website at: <https://www.revenue.state.mn.us/sites/default/files/2019-05/Employment%20Taxes%20Seminar%20Flyer.pdf>.

Complying with this requirement is considered part of the Work under this contract. The Department will enforce this requirement equally with all other Contract requirements. Contractor delay in complying with this requirement will cause the Department to delay final payment and Contract Acceptance. The Department may also report non-compliance to the Department of Revenue, which may result in enforcement action by the Department of Revenue.

Contractor Affidavit requirements and Form IC134 can be found here:
<https://www.revenue.state.mn.us/contractor-affidavit-requirements>.

S-4 PROTECTION OF BATS

NEW WRITE-UP 01/31/20

SP2018-9

The Project location is in a county inhabited by threatened bat species. This work shall consist of protecting bats in accordance with State and Federal regulations, and shall follow all applicable Avoidance and Minimization Measures (AMMs) identified below.

Always use S-1 A, B and C.

S-4.1 GENERAL REQUIREMENTS

(A) Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA environmental commitments and avoidance and minimization measures (AMMs). Notify contractors during the preconstruction meeting.

(B) Undertake all practicable measures to protect both bats and their habitat.

(C) All bat sightings, live or dead, shall be immediately reported to the MnDOT Wildlife Ecologist (651-366-3605).

S-4.2 TREE REMOVAL REQUIREMENTS

(A) Restrict all activities to avoid tree clearing June 1 to August 15, inclusive.

(B) Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits).

S-4.3 STRUCTURES

(A) If structure maintenance, repair, and/or alteration will be performed during the winter hibernation period (November 1 to March 31, inclusive), determine if work will occur in an area with hibernating bats. If hibernating bats or signs of frequent bat activity are observed, Transportation Agencies and State DOTs must conduct maintenance activity or similar structure alteration in a manner that will not disturb bats using the structure. *Contact MnDOT Wildlife Ecologist (651-366-3605) with questions.*

(B) If structure maintenance, repair, and/or alteration will be performed **outside of the winter hibernation period**, determine if work will occur in an area with roosting bats. If bat activity or signs of frequent bat activity (e.g., guano stains) are observed, Transportation Agencies and State DOTs must conduct maintenance activity or similar structure alteration in a manner that will not disturb bats using the structure. *Contact MnDOT Wildlife Ecologist (651-366-3605) with questions.*

(C) If bat activity or signs of frequent bat activity is observed, Transportation Agencies and State DOTs must not remove the structure. *If there are concerns about human health/safety/property, coordinate with the MnDOT Wildlife Ecologist (651-366-3605).*

S-4.4 MEASUREMENT AND PAYMENT

The Engineer will consider Measurement and Payment for Protection of Bats incidental.

S-5 USE OF ADHESIVE ANCHORS

SP2018-11

Do not use adhesive anchors in sustained tension. Contractor may use adhesive anchors, in a non-direct tensile application, such as metal rail attachment.

S-6 **(1103) DEFINITIONS**

SP2018-16

The provisions of MnDOT 1103 are supplemented as follows:

S-6.1 The following definition is added to MnDOT 1103:

Unit Day. 12:00 AM to 11:59 PM (0000-2359) or any portion thereof.

S-7 **(1508) CONSTRUCTION STAKES, LINES, AND GRADES**

SP2018-28

The following is added to the first paragraph of MnDOT 1508:

The Engineer will set no stakes for construction in areas where shoulder grading and base construction may be referenced to the in place surfacing. In locations where the entire roadbed will be reconstructed for a distance of 200 feet or more, the Engineer will set stakes as the Engineer deems necessary and will also set bluetops at either the grading shoulders or centerline (Contractor's option). The Engineer will provide construction staking for all culvert extensions and changed ditch grades on the Project in accordance with paragraph 3.

S-8 **(1601) SOURCE OF SUPPLY AND QUALITY**

SP2018-31

The provision of MnDOT 1601 are supplemented as follows:

As required by U.S. Code of Federal Regulations (23CFR635.410) the Contractor will furnish and use only steel and iron materials that have been melted and manufactured in the United States. Foreign source materials are any domestic products taken out of the United States for any process (e.g. change of chemical content, permanent shape or size, or final finish of product).

All bids must be based on furnishing domestic iron and steel, which includes the application of the coating, except where the cost of iron and steel materials incorporated in the work does not exceed one-tenth of one percent of the total Contract cost or \$2,500.00, whichever is greater. The state may approve the use of foreign iron and steel materials for particular Contract items, provided the bidder submits a stipulation identifying the foreign source iron and/or steel product(s) and the estimated invoice cost of the product(s), for one or more of the Contract bid items. The Contractor shall submit a "Stipulation for Foreign Iron or Steel Materials" form for each stipulation with the Contractor's proposal. **If the Contractor chooses to use ANY non-domestic iron or steel, the Contractor must submit a stipulation.** The Contractor may use one of the following means to submit their stipulation:

1. Submit the stipulation form within the proposal.
2. If the Contractor submits a "Two Way Electronic Bid" as described in MnDOT 1206, the completed chart must be submitted to MnDOT prior to the bid opening and no later than 9:30 A.M. on the day of the bid opening.
 - a) E-Mail the form to biddocsubmittal.dot@state.mn.us; place the State Project number in the subject line.
 - b) Mail or otherwise deliver the stipulation to Nancy Boeve, 395 John Ireland Boulevard, M.S. 650, St. Paul, MN 55155.

The "Stipulation for Foreign Iron or Steel Materials" form is attached or can be found on the MnDOT Web site: <http://www.dot.state.mn.us/bidlet/resources.html>.

Prior to **performing** work the Contractor shall submit to the Engineer a certification stating that all iron and steel items supplied are of domestic origin, except for non-domestic iron and steel specifically stipulated and permitted in accordance with the paragraph above.

Source of Supply and Quality: MnDOT 1604 is supplemented as follows: All costs of shop inspection at plants outside the United States shall be borne by the Contractor. Monies due or to become due the Contractor will be reduced according to these costs.

Partial Payment: All provisions for partial payments shall apply to domestic materials only. The Contractor will not receive payment for materials manufactured outside of the United States until such materials are delivered to the job site.

Alternate Bidding Process. Unless an alternate bidding process is specified, use of foreign steel and iron products in quantities in greater than provided above is not permitted. When the alternate bidding process is permitted the Contract may be awarded to the bidder who submits the lowest total bid based on furnishing domestic iron or steel unless such total bid exceeds the lowest total bid based on foreign materials by more than 25 percent.

S-9 (1602) NATURAL MATERIAL SOURCES

SP2018-32

The provisions of MnDOT 1602 are supplemented with the following:

S-9.1 The expansion of any existing natural material sources, or the creation of new Natural Material Sources, will be subject to the requirements of the Farmland Protection Act of 1981 (FPPA or the ACT). Coordination to comply with FPPA shall be the responsibility of the Contractor. Contact the Natural Resources Conservation Service (NRCS) office for the county in which the source is located for further information.

S-9.2 The Department's Charge for material from a leased source will be direct payment, by the Contractor, to the owner of leased source, upon furnishing the Contractor with statements showing the quantities to date and the amount due. Full reimbursement will be required before final payment is made on the Contract.

S-9.3 The Department's Charge for material from a Department owned source will be deducted from the moneys due on partial and final estimates, upon furnishing the Contractor with statements showing the quantities to date and the amount due. Full reimbursement will be required before final payment is made on the Contract. Upon conclusion of the Contract, any processed or unprocessed material not used shall become the property of the Department.

S-9.4 Materials may be obtained for use throughout the Contract from the sources listed below at the appropriate price. The Contractor shall obtain required licenses and permits, and pay all applicable fees or sales/user taxes to proper Federal, State or Local Agency. (See MnDOT 1702, Permits Licenses and Taxes.) The quoted price does not include the sales tax or any other taxes.

S-9.5 Lake County's Pits:

- A) Bear Pit, located in Section 12, T55N, R10W
- B) Lax Lake Pit located in Section 1, T56N, R8W
- C) Available to the Contractor for use on this project.
- D) Cost of raw material is \$2.00 per cubic yard (Bank Measure) plus State sales tax.

S-9.6 Charges for material from a Department owned or leased source will be based upon the actual quantities hauled from the source, less any water and other materials added from outside sources prior to weighing.

S-9.7 Any Topsoil not incorporated into the crushed aggregates shall be stockpiled at locations approved by the Engineer and at the Engineer's option spread out evenly at the Engineer's direction over depleted areas of the pits. This will be considered to be incidental work and no direct compensation will be made therefore.

S-9.8 Any clearing, grubbing and shaping that is required in gravel pits will be considered to be incidental work and no direct compensation will be made therefore. In general, depleted areas shall have slopes of 1:3 or flatter and working faces shall have a 1:1 or flatter slope.

S-9.9 No guarantee is made, expressed or implied as to the quality or quantity of the material if the Contractor elects to use the sources made available through the Lake County Highway Department.

S-9.10 Final Payment will not be issued until final sloping and cleanup of the pit has been completed and approved by the Engineer.

S-9.11 Material excavated from a County-owned source shall be used exclusively on the project in which the source is listed and shall only be used to produce materials required for this project unless previously authorized by Lake County Board of Commissioners. The Contractor is prohibited from removing any portion of the source that is not intended for use on the current Contract.

S-9.12 Gravel resources in Lake County pits may be removed from below the groundwater level for use on these projects.

S-10 (1701) LAWS TO BE OBSERVED (WET LANDS)

REVISED 05/17/19

SP2018-34

The provisions of MnDOT 1701 are modified and/or supplemented with the following:

S-10.1 If the Contractor operations involve the excavation and/or disposal of material off MnDOT Right of Way, the Contractor is advised of the following:

MN Statutes Sections 103G.2212 and 103G.241 stipulate that an agent or employee of another may not:

- 1) drain, excavate, or fill a wetland, wholly or partially; or
- 2) construct, reconstruct, remove, or make any change in any reservoir, dam, or the course, current, or cross-section of any public water.

unless a signed statement from the property owner is obtained stating that any permit or wetland replacement plan required for the work is in place, or that a permit or replacement plan is not required; **AND** this statement is mailed to the appropriate office with jurisdiction over the wetland or public water prior to initiating the work.

The "Landowner Statement and Contractor Responsibility For Work in Wetlands or Public Waters" can be found at <http://www.bwsr.state.mn.us/wca-forms-and-templates>. The Contractor shall provide the Engineer with a copy of the completed "Landowner Statement and Contractor Responsibility for Work in Wetlands or Public Waters" for the excavation and/or disposal site prior to initiating the work.

S-11 (1701) LAWS TO BE OBSERVED (CULTURAL RESOURCES – STATE FUNDED)

REVISED 08/17/18

SP2018-38

The provisions of MnDOT 1701 are modified and supplemented with the following:

S-11.1 For any project that MnDOT funds or conducts, or that is located in MnDOT Right of Way, including owned or leased Natural Materials Resources, the following terms will apply:

(A) MnDOT is responsible for obtaining a Cultural Resources Unit (CRU) findings letter.

(B) Contractor will notify MnDOT if contractor intends to use any material from a proposed excavation area on any land controlled by MnDOT. MnDOT must request a review from the MnDOT CRU before allowing any contractor to use any material from a proposed excavation area on any land controlled by MnDOT. The review may take 15 calendar days or longer after receipt of the request. If MnDOT CRU determines that a survey is needed, the review period may be even longer. Contractor is responsible for any delays due to the length of the review and may not base a claim for damages due to delay of Contract on the length of the review.

S-11.2 If the Contractor operations require the excavation and disposal of material from locations other than MnDOT Right of Way, the following term will apply:

(A) A CRU findings letter is not necessary.

(B) Contractor must comply with Minnesota Statutes § 307.08, Minnesota Private Cemeteries Act, if applicable.

S-11.3 If any human remains are encountered within the Project limits, the Contractor shall immediately stop work in the vicinity, notify the Engineer, and request suspension of work in the vicinity of the discovery area, in accordance with MnDOT 1803.4.

S-12 (1701) LAWS TO BE OBSERVED – CERTIFICATION OF NONDISCRIMINATION AGAINST ISRAEL

SP2018-40

By signing this Contract, Contractor certifies it does not engage in and has no present plans to engage in discrimination against Israel, or against persons or entities doing business in Israel, when making decisions related to operating the Contractor's business. For purposes of this section, "discrimination" includes, but is not limited to, engaging in refusals to deal, terminating business activities, or taking other actions that are intended to limit commercial relations with Israel, or persons or entities doing business in Israel, when such actions are taken in a manner that in any way discriminates on the basis of nationality or national origin and is not based on a valid business reason.

S-13 (1706) EMPLOYEE HEALTH AND WELFARE

SP2018-41

The provisions of MnDOT 1706 are supplemented with the following:

S-13.1 The Contractor must not use motor vehicle equipment that has an obstructed rear view unless:

(A) The vehicle has a reverse alarm that is audible above the surrounding noise level; or

(B) An observer signals to the operator that it is safe to reverse.

S-13.2 **The Department may assess a monetary deduction \$500 per incident for a violation of safety standards that could result in death or serious injury.**

S-13.3 The areas of special concern include, but are not limited to, excavation stability protection, fall protection, protection from overhead hazards, vehicle backup protection (see S-13.1 above), confined space safety, blasting operations, and personal safety devices.

S-13.4 The Contractor cannot avoid complying with safety standards by paying the deduction.

S-14 INSURANCE LIMITS

Also covered in City of Two Harbors Std Contract Provisions and Supplemental Conditions 6.0

S-14.1 The Contractor shall not commence work under the Contract until the following insurance is obtained and such insurance has been approved by the Lake County Attorney, if requested.

S-14.2 The Contractor shall deposit with the County Auditor, Certificates of Insurance verifying the coverage's and limits, as applicable to this project, of the Public Liability and Property Damage Insurance and Extended Coverage Policies required hereunder. The Contractor shall furnish to the County a certificate of Insurance for Worker's Compensation Insurance and such other insurance as is herein required. All policies and certificates shall provide that the policies shall remain in force and effect on 30 days written notice to the County Auditor before

cancelation. The insurance policies shall be submitted at the same time as the Contract and Bond as provided in 1306.

- As called out in the project supplemental conditions – City of Two Harbors Standard Contract Provisions.

The cost of all insurance required herein will be considered to be incidental expense and no direct compensation will be made therefore.

S-15 (1801) SUBLETTING OF CONTRACT

SP2018-49

The provisions of MnDOT 1801 are modified as follows:

Use S-.1 on all jobs.

S-15.1 For Projects in excess of \$50,000, the Contractor may sublet work only to subcontractors that meet the definition of “responsible contractor” in Minnesota Statutes §16C.285, subdivision 3. The Contractor shall obtain verifications of compliance with §16C.285 from subcontractors using a form provided by the Department. The Contractor must provide such verifications to the Department upon the Department’s request.

Use S-.2 on all jobs.

S-15.2 The third paragraph of MnDOT 1801 is modified to read:

On Contracts with Disadvantaged Business Enterprise (DBE), Targeted Group Business (TGB) or Veteran-Owned Small Business (VET) established goals, or any combination thereof, the Contractor's organization shall perform Work amounting to not less than 30 percent of the total original Contract Amount. The Department will deduct specialty items from the total original Contract Amount before calculating the amount of Work that the Contractor shall perform.

S-16 (1802) TRAINING FOR CONSTRUCTION TRUCK OPERATORS

SP2018-50

Construction truck operators that haul construction materials such as borrow, aggregate base, asphalt mixtures and concrete paving mixtures are encouraged to become trained in Construction Truck Operator Training (CTOT).

The CTOT course covers the Federal and State construction truck and driver requirements and regulations. The course also covers safe driving techniques. The course includes presenters from the Minnesota State Patrol, Minnesota Department of Transportation, and Hennepin Technical College.

For additional information, contact:

Hennepin Technical College
Email: ctsregistration@hennepintech.edu
Phone: 763-488-2721
Website: HennepinTech.edu/CTOT

Call 952-995-1330 to register and/or get location information for upcoming CTOT Classes.

S-17 (1804) PROSECUTION OF WORK (ADA)

REVISED 10/25/18

The provisions of MnDOT 1804 are supplemented and/or modified with the following:

S-17.1 SPECIAL PROJECT ADA REQUIREMENTS

All pedestrian facilities on this Project must be constructed according to Public Rights-of-Way Accessibility Guidelines (PROWAG) which can be found at: <http://www.dot.state.mn.us/ada/pdf/PROWAG.pdf>. The appropriate pedestrian ramp details for each quadrant are included in the Plan. The Engineer may provide

additional details to those provided in the Plan that meet the PROWAG guidelines as the need arises and field conditions dictate.

(A) The Contractor must designate a responsible person competent in all aspects of PROWAG to assess proposed sidewalk layouts at each site before work begins. The designated person must have attended the MNDOT ADA Construction Certification Course and received a passing score, within the past 3 years. For class dates and locations please refer to the following link at: <http://www.dot.state.mn.us/ada/training.html>. A minimum of one person per project must possess a valid ADA Construction Certification card anytime ADA work is being performed on the project. If work on electrical components is the only ADA work taking place on the project the electrician must have in their possession a current MNDOT Signals and Lighting Certification.

ADA work shall include, but not be limited to, the following: assessment of proposed sidewalk layouts at each site before work begins, determining and marking removal limits for work pertaining to pedestrian facilities, all ADA related removals and grading, forming and finishing of concrete at all pedestrian facilities, paving pedestrian crossings, placing bituminous pedestrian facilities, final grading, and pavement markings. Any ADA work not listed above can be added at the discretion of the Engineer. An ADA Certified person is not required on site if the only work being performed concerns traffic signals and APS installations.

These requirements shall be effective as of May 1, 2019. Any time work the Contractor is performing concerns pedestrian facilities, the Contractor's ADA Certified person shall be on site.

(B) Pedestrian facilities must be constructed to meet the following criteria:

- (1) Pedestrian Access Routes (PAR) must be constructed to meet the following:
 - Minimum 4 feet width.
 - A maximum cross slope of 2.0%.
 - Vertical discontinuities must be less than 0.25 inches.
 - Must provide positive drainage without allowing any ponding and maintain existing drainage flow patterns unless indicated otherwise in the Plan.
 - All grade breaks shall be constructed perpendicular to the path of travel.
 - Maximum 5% running slope unless adjacent roadway profile exceeds 5%.
- (2) Landings are part of the PAR and must be constructed to meet the following:
 - 4 feet by 4 feet minimum width and shall match full width of incoming PAR.
 - Maximum slope of 2.0% in all directions.
 - Required at all locations where the PAR changes directions or inverse running slopes are >2%.
 - Must be connected to the PAR.
 - Shall be constructed as a single plane surface having no grade breaks.
- (3) Ramps are part of the PAR and must be constructed to meet either of the following criteria:
 - Longitudinal slopes less than 5% in the direction of travel requires no landing at the top of the ramp (unless the PAR changes direction).
 - Longitudinal slopes between 5 - 8.3% in the direction of travel require a landing at the top of the ramp.

(C) The Contractor and the Engineer shall work together to construct all pedestrian facilities set forth in the plans and in the above Section S-17.1.B. PROSECUTION OF WORK (ADA)

If the plan or site conditions do not allow accessibility standards to be met, the Contractor shall consult with the Engineer to determine a resolution. The Engineer shall respond to the Contractor, in a timely manner (up to 24 hours), with a solution on how to proceed. The Contractor shall mitigate any potential delays by progressing other available work on the project.

If the Contractor constructs any pedestrian facilities that are not per Plan, do not meet the above requirements in Section S-17.1.B, or do not follow the agreed upon resolution with the Engineer, the Contractor will be responsible for correcting the deficient facilities with no compensation paid for the corrective work.

The following hold points will be utilized in the construction of pedestrian facilities.

- (1) **Removals** - The Contractor and the Engineer shall use the appropriate ramp, sidewalk, and driveway details in the Plan, and calculate the removal limits for the sidewalk and curb and gutter. If it is determined that the removal limits will exceed the plan removal limits by more than 10 feet and the plan removal limits are not adequate to meet PROWAG and MnDOT Standards, the Contractor shall consult with the Engineer to determine a solution. Once the Engineer and the Contractor reach an agreement on how to proceed, the Contractor may finish the removals.
- (2A) **Curb and Gutter at Quadrants** – Prior to pouring the curb and gutter at curb ramps the Contractor and the Engineer must verify that the curb and gutter will work with any vertical constraints (doorways, steps, bus stops, outwalks and landing areas). Prior to pouring curb and gutter at quadrants the Contractor must verify the zero height curb, and curb transitions will be located as shown in the Plans and will provide an adequate detectable edge as shown on Standard Plan 5-297.250 (Sheet 4 of 6). Verify curb tapers are constructed at correct heights so that positive boulevard slopes and drainage is maintained away from landings and sidewalks, to the newly constructed curb and gutter sections. The Contractor shall verify that the proposed gutter flow lines will provide positive drainage as well as maintain existing drainage patterns including existing gutter inflows/outflows. The curb and gutter shall be constructed as detailed in the Plan with a defined flow line and with no vertical discontinuities over ¼". For required flow line corrections including curb line raises and curb ramp cross slope "tabling", see Standard Plan 5-297.250 (Sheet 6 of 6). Curb shall be poured at 3% inflow around the radius or at a minimum distance of 10 feet from any zero height curb section when machine placed. The Contractor shall consult with the Engineer to determine a resolution if any of these conditions cannot be met. Once the Engineer and the Contractor reach an agreement on how to proceed, the Contractor may proceed with pouring the curb and gutter.
- (2B) **Curb and Gutter at Roadway Sections** - Prior to pouring curb and gutter at roadway sections the Contractor must verify proposed curb and gutter heights will work with existing roadway and shoulder slopes. The Contractor shall verify prior to placing the pedestrian facilities that positive drainage is maintained within public Right-Of-Way (R/W), as well as maintaining existing off R/W drainage. The Contractor shall check to ensure all top back of curb elevations will allow for adequate boulevard slopes, PAR slopes, and widths as shown on Standard Plan 5-297.254 (Sheet 4 of 4) while maintaining all vertically constrained match points (doorways, steps, bus stops, outwalks and landing areas). The Contractor shall check all driveway locations and widths and follow driveway details and plans for all driveway layouts including curb heights and curb tapers. Driveway curbs sections and aprons shall be constructed to minimize changes in the sidewalk width, alignment, and profile. The Contractor shall consult with the Engineer to determine a resolution if any of these conditions cannot be met. Once the Engineer and the Contractor reach agreement on how to proceed, the Contractor may proceed with pouring the curb and gutter.
- (3) **Forming and Finishing** - After the curb and gutter has been correctly poured, and the Contractor has set the sidewalk forms, the Contractor shall verify prior to placing the curb ramps and sidewalks that positive drainage is maintained within public R/W, as well as maintaining existing off R/W drainage, and that all the requirements in Section S-17.1.B will be achieved.

Ramps – In addition, the longitudinal slopes shown in the Construction Plans and the Standard Plan shall be utilized unless these conditions cannot be met. The starting point for setting the forms on the controlling ramp leg, landing, and sidewalk slopes should be the following:

Steep (S) = 7%
Flat (F) = 4%
Landing = 1%
Sidewalk Cross Slope = 1.5%

If any of these requirements cannot be met the Contractor shall meet with the Engineer to determine the best solution. Once the Engineer and the Contractor reach an agreement on how to proceed, the Contractor may proceed with the curb ramp and sidewalk pour.

Landings – An initial landing is the first required landing of a pedestrian ramp. All initial landings required at the top of a ramped sloped surface (>2% longitudinal slope), shall be formed and placed separately in an independent concrete pour. This does not include initial landings placed at roadway grade such as depressed corners, parallel ramps, rural flat landings, or flat cut-throughs. Secondary landings consist of all landings beyond the initial landing. These secondary landings do not require a separate landing pour.

Wet casting or drill and grouting of reinforcement bars will be required in accordance with the details shown in Standard Plan 5-297.250 (Sheet 6 of 6). Wet casting of reinforcement bars shall be installed through holes or slots in the forms, with a form height at least equal to the walk thickness of the formed concrete shown in the plans. These bars shall be deformed and installed with 2 inch minimum concrete cover.

When not accounted for in the Plan, payment for these bars will be made under Item 2301.602 (Drill & Grout Reinforcement Bar (Epoxy Coated)) by the Each at the Predetermined Price of \$10.00 per bar furnished and installed. All necessary subgrade preparation and aggregate base placement for the entire ramp construction limit shall be done before the initial landing is constructed at each location.

(D) It shall be the responsibility of the Contractor, or Contractor's Surveyor if applicable, to lay out all proposed work at each intersection in accordance with the Plan and requirements listed in this Special Provision. The Contractor may confer with the Engineer for guidance in laying out the proposed work, but it will be the Contractor's responsibility to ensure the proposed work meets all the requirements of this Special Provision. This layout includes, but is not limited to placement of grade breaks, curb transitions, gutter flow lines, truncated dome placement, crosswalk marking placement, flares, landing limits, removal limits, driveway tie in limits, and ramp limits. It is important that the Contractor lay out this work properly to achieve the construction of a compliant pedestrian facility. The owner's surveyor will only stake points and elevations provided in the Plan. For custom designs, other than specific dimensions provided in the Plan, the Contractor shall be expected to scale dimensions from the Plan as needed to construct the facility. If scaled dimensions do not allow for a facility to be constructed to meet the requirements of this Special Provision, the Contractor shall follow the process listed in Section S-17.1.C. This layout work shall be incidental.

(E) The Contractor shall utilize measures and methods when working near existing buildings that will avoid damaging the building's face or structure. The contractor will be responsible for any damage to the building's face or structure, both below and above ground. Any damage resulting from Contractor's operations will be repaired at the Contractor's expense to the satisfaction of the Engineer.

(F) The Contractor will round all joints and edges with a 1/4 inch radius grooving or edging tool within the PAR. This requirement includes all curb and gutter joints at zero inch height curb sections at curb ramps.

Contraction joints shall extend to at least 30 percent of walk thickness. The Contractor shall also have the option of providing saw cuts to construct the sidewalk joints. If saw cutting, provide 1/8 inch wide contraction joints within the PAR, including all curb and gutter joints at zero inch height curb sections. When greater than 50 feet of continuous sidewalk runs are constructed the contractor shall saw cut all joints. This work shall be incidental.

The top grade break of walkable flares needs a visual joint to indicate a change in grade. To eliminate the use of excessive contraction joints in the quadrant the visual joint shall meet MnDOT 2521.3.C, except the depth requirement is reduced to 1/4 inch.

In sections where concrete boulevard is placed between the back of curb and the sidewalk, the 1/2 inch preformed joint filler material shall be placed at the back of curb and between the outside edge of sidewalk at existing building or structures. The 1/2 inch wide preformed joint filler shall not be placed in the longitudinal joint between the sidewalk and boulevard, unless it is necessary to provide expansion at fixed structures. At locations where sidewalk is adjacent to existing buildings, extend walk up to the edge of building and place 1/2 inch preformed joint filler 1/2 inch lower than top of walk whenever possible. Furnish and install Backer Rod of appropriate diameter when joints are 1/4 inch wide or greater, clean surfaces and apply approved silicon joint filler to flush with top of walk. If the transverse sidewalk and boulevard joint layouts cannot be aligned, use approved preformed joint filler with a maximum 1/8 inch width and place between the sidewalk and boulevard to prevent contraction joints from migrating into the adjacent concrete panels.

(G) The minimum continuous and unobstructed clear width of a pedestrian access route shall be 4.0 feet. All new or reconstructed sidewalk widths shall match or exceed in place sidewalk and in no case shall it be less than 5.0 feet in width except at locations where obstructions cannot be moved or at driveways where slopes exceed the maximum allowable grades. The cross slope of the sidewalk or shared use path shall not exceed 2%, and shall be measured perpendicular to the path of travel across the entire surface width of the sidewalk or shared use path. Curb ramps should match proposed sidewalk PAR width and shall match full shared use path widths. Whenever possible, the entire landings should be placed in a single concrete placement. If this is not possible due to construction staging, follow requirements for reinforcement bar placement and tie adjacent landings together.

In areas where the sidewalk is to be constructed around fixed structures and the grade has been changed, the sidewalk shall be finished around these structures to the satisfaction of the Engineer at no additional cost.

Architectural elements such as brick pavers, concrete stamping, and multiple colored concrete placements shall be kept outside the curb ramps and landing areas. Any architectural elements that do not maintain a consistent flat smooth surface shall not be used within the PAR.

S-18 (1902) SCOPE OF PAYMENT

NEW WRITE-UP 09/12/19

SP2018-56.1

MnDOT 1902 is deleted and replaced with the following:

The Contractor will receive compensation provided for in the Contract as full payment for providing Materials and performing Work in accordance with the Contract requirements. This includes compensation for all risk, loss, damage, and expense incurred by the Contractor for performing the Work required by the Contract. Payment is subject to 1720 "No Waiver of Legal Rights". The Department prohibits the Contractor from accepting payment from any other party for performing the Work required by the Contract, including any incentive or bonus payment. The Department does not prohibit the following payments from third parties:

- (1) Payments from sureties;
- (2) Quantity-based rebates or credits from suppliers;
- (3) Payments under another contract for excess material removed under this Contract.

S-19 (1904) EXTRA WORK AND FORCE ACCOUNT WORK

The following sentence shall be added to the second paragraph of MnDOT 1904:

Under no circumstance will the negotiated unit price for Extra Work which is performed by a subcontractor include a Prime Contractor allowance which exceeds that provided for in 1904(4), Paragraph 3.

The third paragraph of MnDOT 1904(4) Miscellaneous Compensation is hereby deleted and the following substituted therefore:

For any Force Account work performed by a subcontractor, the Contractor will be paid the actual costs, if considered reasonable by the Engineer, of its performance as computed on the foregoing basis. The Department will pay one, and only one, additional allowance to cover administration, general superintendence, overhead, profit, and expenses not otherwise recoverable. The additional allowance will be a percentage of the total Force Account invoice equal to 10 percent (10%) of the first \$50,000 plus 2 percent (2%) of the balance in excess of \$50,000.

The Contractor is required to submit force account work itemized statements of costs in accordance with MnDOT 1904 to the Engineer on MnDOT form TP-2159 (Summary of Daily Force Account). Copies of this form can be obtained from the Engineer.

S-20 (1910) COST ESCALATION - FUEL

SP2018-57

The provisions of MnDOT 1910 are hereby supplemented with the attached Fuel Escalation Clause.

Attached at the end of these Appendix "C" - MnDOT Special Provisions

S-21 (2462) PRECAST CONCRETE

REVISED 04/09/20

SP2018-157

MnDOT 2462 is hereby modified as follows:

S-21.1 Table 2462-4 of MnDOT 2462.2.F.2 shall be deleted and replaced with the following:

F.1.d Coarse Aggregate (CA) Designation

Determine the coarse aggregate designation in accordance with Table 2462-3 based on the intended use and the gradation requirements in 3137, "Coarse Aggregate for Portland Cement Concrete."

Table 2462-3	
Coarse Aggregate Designation for Concrete	
Designation	Coarse Aggregate Gradation
1	2301, Concrete Pavement Only
2	ASTM #67
3	ASTM #7
4	ASTM #89
7	CA-70
8	CA-80
X	No gradation required

S-21.2 Table 2462-4 of MnDOT 2462.2.F.2 shall be deleted and replaced with the following:

Table 2462-4 Precast Concrete Mix Design Requirements								
Concrete Grade	Mix Number *	Intended Use 	Maximum w/c ratio	Cementitious Content (lbs/cy)	Maximum %SCM (Fly Ash/ Slag/ Ternary)	Slump Range ‡	Minimum Compressive Strength, f'c (28-day) #	3137 Spec.
M	3M82	Precast Concrete Barrier	0.45	530 – 750	30/35/40	1 – 8”	4500 psi	2.D.1
V	3V82	Wetcast retaining wall blocks, noisewall panels, equipment pad	0.45	605 – 850	30/35/40	1 – 8”	4000 psi	2.D.1
W	1W82	Bridge Girders	0.42	660 – 850	30/35/40	1 – 8”	Design Strength Per Plan §	2.D.1
	3W82	Noisewall posts, box culverts, bridge girders†	0.42	660 - 850	30/35/40	1 – 8”	Design Strength Per Plan §	2.D.1
	3W8X	Pipe, manholes, inverts	0.45	470 +	30/35/40	1 – 8”	Design Strength Per Plan §	2.D.1
Z	3Z82	Thin Panel Retaining Walls	0.45	605 – 850	30/35/40	1 – 8”	4000 psi	2.D.2

* The Precaster may choose to use the Coarse Aggregate Designation “1” for the 4th digit in accordance with Table 2462-3, if allowed by the structure.
 || If the intended use is not included elsewhere in the Specification or Special Provisions, design concrete mix 3W82.
 † Review the Plans to determine if the bridge girders require air entrainment.
 ‡ Flowable slumps exceeding the designated slump range require approval of the MnDOT State Materials Engineer.
 # Requires strength cylinders in accordance with 2462.3.G.4 for determining shipping strength.
 § If design strength is not indicated in Plan, minimum 28-day compressive strength is 5700 psi for 1W82 and 5000 psi for 3W82 and 3W8X

S-21.3 The first sentence of MnDOT 2462.2.F.1.b shall be deleted and replaced with the following:

The Department will designation concrete grade in accordance with Table 2462-4 using a letter to represent the following:

S-21.4 MnDOT 2462.3.G.4 shall be deleted and replaced with the following:

G.4 Test Methods and Specimens

Perform sampling and testing in accordance with the Concrete Manual and test according to the requirements of the Schedule of Materials Control.

Anyone fabricating concrete cylinders is required to hold either a current ACI Field 1 Technician Certification or a MnDOT Field 1 Technician Certification.

Anyone performing concrete strength testing of cylinders is required to hold one of the following current certifications:

- (1.1) ACI Strength Testing Technician Certification,
- (1.2) MnDOT Strength Testing Technician Certification, or
- (1.3) WisDOT Strength Testing Technician Certification.

Furnish molds based on the maximum size aggregate for the test specimens in accordance with the following:

- (2.1) 4 in × 8 in cylinder molds,
- (2.2) 6 in × 12 in cylinder molds for maximum aggregate sizes greater than 1¼ in.

G.4.a Strength Cylinders

The Precaster will cast all strength cylinders to determine the following:

- (3.1) Handling or “Stripping” Strength
- (3.2) Shipping Strength
- (3.3) Verification

Cast all cylinders used for determining strength at each stage for all types of precast operations. Cure all cylinders in the same location and under the same conditions as the concrete structure or unit involved meeting the requirements of ASTM C31.

S-22 (2563) ALTERNATE PEDESTRIAN ROUTE

REVISED 03/09/18

SP2018-230

S-22.1 Maintain and guide pedestrian traffic through the Project at all times using continuous Alternate Pedestrian Routes (APRs) per standards set forth in the MN MUTCD Chapter 6D. Provide each APR to the same level of accessibility of each existing access and walkway prior to construction. Utilize accessible device standards as shown in the plan or in Figure 6K-5 in the Field Manual if a plan is not provided. Utilize bypass and detour standards as shown in the plan or in Layouts 88 and 89 in the Field Manual if a plan is not provided.

Provide and place accessible pedestrian signals (APS), temporary curb ramps, pedestrian barricades, pedestrian channelizers, detectable edges, temporary walkway surfaces and other accessible design features as necessary.

As needed, provide continuous temporary walkway surfaces that are smooth, stable and slip resistant in relevant weather conditions. Temporary walkway surfaces will allow the normal usage of wheelchairs, walkers, strollers, and other mobility devices. Concrete, bituminous, steel, rubber, wood (¾ inch or thicker), and plastic are acceptable surface materials for the temporary walkway surface. Gravel, millings, or other uneven

surfaces are not acceptable surface materials. Temporary walkway surface devices shall utilize dimensions from 6F.74.1 in the MN MUTCD. The temporary walkway surface shall be supported by a solid base.

Any portable sign or barricade placed in or adjacent to a pedestrian walkway shall have a detectable edge to guide pedestrians with visual disabilities around the sign or barricade.

S-22.2 Minimize disruption to pedestrians to the maximum extent feasible by providing APRs in the following order of preference:

1. Provide the APR on the same side of the street as the disrupted route utilizing bypasses.
2. Where it is not feasible to provide a same side APR, provide an APR on the other side of the street.
3. Where it is not feasible to provide an APR on the other side of the street, provide an APR detour with trailblazing signs.

If existing parking spots are desired to be used for an APR route within the project limits, contact the Public Works Department, City of Two Harbors for approval and parking banning notification procedures.

S-22.3 Schedule and coordinate the replacement of pedestrian access to accommodate the needs of businesses and residences 4 days prior to the replacement. Leave the existing sidewalks in-place until such time that it is required to remove them to accommodate new construction. Pedestrian access may be provided to businesses and homes through the use of any public access from adjacent parking lots and side streets. Provide front door access to buildings without alternate public entrances.

S-22.4 Protect the pedestrian route with pedestrian barricades or pedestrian channelizing devices if it is adjacent to construction, excavation drop-offs, traffic, or other hazards. Protect the pedestrian route with portable barrier if it is on the shoulder, in a parking lane, or in a closed lane adjacent to traffic on a multilane road or if the speed limit is greater than 40 mph. When both sides of a pedestrian route require channelizing devices, use similar types, unless portable barrier is used to protect pedestrians from traffic.

S-22.5 Notify the Engineer in writing at least 72 hours prior to the start of any construction operation that will necessitate a change in pedestrian access.

S-22.6 Furnish the name, address, email, and phone number of at least one individual responsible for the maintenance of the APR. This individual shall be "on call" 24 hours a day, seven days per week during the times any devices, furnished and installed by the Contractor, are in place. Submit the required information to the Engineer at the pre-construction meeting.

Answer calls immediately and begin corrective measures needed within one hour. **If the Contractor is negligent in correcting the deficiency within one hour of notification the Contractor shall be subject to a monetary deduction at the rate of \$100.00 per hour when only one residence or location is affected and at the rate of \$500.00 per hour in all other cases that the Engineer determines the Contractor has not complied.**

S-22.7 No measurement will be made of the various items that constitute APRs. Payment for all costs of the APRs, including furnishing, installing, maintaining and removing the individual devices, shall be included in the lump sum payment for traffic control.

S-23 (3885) ROLLED EROSION PREVENTION PRODUCTS

NEW WRITE-UP 10/10/19

- SP2018-261

Replace MnDOT 3885 with the following:

3885 ROLLED EROSION PREVENTION PRODUCTS

3885.1 SCOPE

Provide erosion prevention blankets, turf reinforcement mats, and other products to prevent erosion, stabilize soils, reinforce vegetation, and aid in the establishment of vegetation, where applicable. Ensure that net openings are small enough to retain uniformly distributed fill material but large enough to allow seedling emergence and reduce animal entanglement.

3885.2 REQUIREMENTS

A Temporary Rolled Erosion Prevention Blanket

Use only natural fibers in the manufacture of netting and fill material for temporary products. Provide blankets that conform to the general requirements listed in Tables 3885-1, 3885-2, and 3885-3.

Table 3885-1 Temporary, Straw-based Products				
Criteria	ASTM Number	Category 10	Category 20	Category 30
Net Number (upper/lower)		1	2	2
Fiber Fill Material		100% Straw	100% Straw	70% Straw, 30% Coconut/hemp
Mass* (lb) per sq yd, min.	D6475	0.43	0.43	0.42
Fiber Length (in), 80% greater than		3	3	3
Functional Longevity, 75% remaining (mo)		3	4.5	9
Target Service Life (mo)		4	9	12
Permissible shear (psf), unvegetated	D6460	1.50	1.75	2.00
Flow (ft/s) probable maximum	D6460	4.5	6	8
MD Tensile Strength (lbs/ft), min	D6818	130	170	200
TD Tensile Strength (lbs/ft) min	D6818	80	130	150
Permissible anchor Type		Wood or biodegradable*** plant based plastic barbed, glue, U or round head metal, 11-13 ga.	U or round head metal, 11-13 ga., Washer/60D (6 in) Nail**	Helical twist pin, Washer/60D (6 in) Nail**
Minimum anchor embedment length (inches)		4	6	8

*Dry mass at time of manufacture following ASTM protocols.

**Winter Utilization

***Biodegradable means the product will decompose under ambient soil conditions into carbon dioxide, water, and other naturally occurring materials within one year of installation.

Table 3885-2					
Temporary, Wood Fiber Based Products					
Criteria	ASTM Number	Category 15	Category 25	Category 35	Category 45
Net Number (upper/lower)		Netless	2	2	2
Fiber Fill Material		100% Cellulose, Agricultural products, hemp, wood	100% Wood ^A Fiber	100% Wood ^A Fiber	100% Wood ^A Fiber
Mass* (lb) per sq yd, min.	D6475	0.40	0.57	0.76	1.25
Fiber Length (in), 80% greater than		Varies, 0.5 to 6	6	6	6
Functional Longevity, 75% remaining (mo)		1.5	6	12	24
Target Service Life (mo)		3	12	24	36
Permissible shear (psf), unvegetated	D6460	1.00	2.10	2.50	3.25
Flow (ft/s) probable maximum	D6460	2	7	8	11
MD Tensile Strength (lbs/ft), min	D6818	4	170	220	280
TD Tensile Strength (lbs/ft) min	D6818	4	130	150	200
Permissible anchor Type		Wood or biodegradable*** plant based plastic barbed, glue, U or round head metal, 11-13 ga.	U or round head metal, 11-13 ga., Washer/60D (6 in) Nail**	Helical twist pin, Washer/60D (6 in) Nail**	Helical twist pin, Washer/60D (6 in) Nail**
Minimum anchor embedment length (inches)		4	6	8	10

*Dry mass at time of manufacture following ASTM protocols.

** Winter Utilization

***Biodegradable means the product will decompose under ambient soil conditions into carbon dioxide, water, and other naturally occurring materials within one year of installation.

^A Derived from hardwood (Aspen spp.) or softwoods (pine)

Table 3885-3				
Temporary, Extended Duration Open Weave Textile Based Products**				
Criteria	ASTM Number	Category 37	Category 47	Category 57
Textile Fiber Material		100% Coir or Hemp Fiber	100% Coir or Hemp Fiber	100% Coir or Hemp Fiber
Mass* (lb) per sq yd, min.	D5261	0.75	1.2	1.7
Water Absorbency, %, min.	D1117	160	165	130
Light Penetration, %, min.	D6567	38	35	18
Open Area, %, min.	Calculated	60	40	35
Functional Longevity, 75% remaining (mo)	Reported	36	36	48
Target Service Life (mo)	Reported	60	72	72
Permissible shear (psf), unvegetated	D6460	3	4.5	5
Flow (ft/s) probable maximum, unvegetated	D6460	8	11	16
Tensile Strength, Dry (lbs/ft), min., MDxTD	D6818	500x480	1200x900	1600x1100
Tensile Strength, Wet (lbs/ft) min., MDxTD	D6818	450x360	920x680	1200x930
Elongation at Failure, % max., MDxTD	D6818	36x32	45x40	50x40

*Dry mass at time of manufacture following ASTM protocols.

**Anchoring to be done according to manufacturer recommendations

B Permanent Rolled Erosion Prevention Products

Provide turf reinforcement mats and other permanent products that conform to the general requirements listed in Tables 3885-4, 3885-5, and 3885-6.

Table 3885-4				
Permanent, Synthetic Based, Surface Applied Products				
Criteria	ASTM Number	Category 50	Category 55	Category 60
Net Number (upper/lower)		Stitched 2 or 3 layer, synthetic	Stitched 2 or 3 layer, synthetic	Stitched or Bonded 2 or 3 layer synthetic
Fiber Fill Material		Bio-composite of natural agricultural products, HECP – RFM, coconut, hemp, and synthetic elements	Wood ^A Fiber	Synthetic elements
Mass* (lb) per sq yd, min.	D6475	0.64	0.75	0.5
Fiber Length (in), 80% greater than		3	6	DNA
Functional Longevity, 75% remaining (mo)		12 biological, > 36 synthetic	24 biological, > 36 synthetic	>36
Target Service Life (mo)		>36	>36	>36
Permissible shear (psf), unvegetated	D6460	3.00	3.25	2.50
Flow (ft/s) probable maximum	D6460	10	11	6
MD Tensile Strength (lbs/ft), min	D6818	370	800	290
TD Tensile Strength (lbs/ft) min	D6818	180	800	190
Permissible anchor Type		Helical twist, Hooked #3 rebar, or cable	Helical twist, Hooked #3 rebar, or cable	Helical twist, Hooked #3 rebar, or cable
Minimum anchor embedment length (inches)		12	12	12

*Dry mass (as appropriate) at time of manufacture following ASTM protocols.

^A Derived from Hardwoods (Aspen spp.) or softwoods (pine).

Table 3885-5					
Permanent, Synthetic Based Products filled with Soil, Compost or Organic Fiber Media					
Criteria	ASTM Number	Category 70	Category 72	Category 74	Category 76
Net Number*		TRM	TRM	TRM	TRM
Fill Material**		Topsoil Borrow (3877.2.C) Grade 2 Compost (3890.2.B) Organic Fiber Matrix (3884.2.B.1)	Topsoil Borrow (3877.2.C) Grade 2 Compost (3890.2.B) Organic Fiber Matrix (3884.2.B.1)	Topsoil Borrow (3877.2.C) Grade 2 Compost (3890.2.B) Organic Fiber Matrix (3884.2.B.1)	Topsoil Borrow (3877.2.C) Grade 2 Compost (3890.2.B) Organic Fiber Matrix (3884.2.B.1)
Mass (lb) per sq yd, min.	D6566	0.5	0.5	0.5	1.20
80 Percent test chamber strength retained in hours	D4355	500	1000	3000	3000
Target Service Life	D4355	Permanent	Permanent	Permanent	Permanent
Permissible shear (psf), unvegetated	D6460	4.00	6.00	8.00	10.00
Flow (ft/s) probable maximum	D6460	10	12	14	16
MD Tensile Strength (lbs/ft), min	D6818	150	240	1400	3000
TD Tensile Strength (lbs/ft) min	D6818	130	200	1100	3000
Permissible anchor Type		Helical twist metal hooks, Hooked #4 rebar, tension cable	Helical twist metal hooks, Hooked #4 rebar, tension cable	Tension cable per manufacturer specification	Tension cable per manufacturer specification
Minimum anchor embedment length (inches)		18	18	18	18

*Provide mats with cells at least ¾ - ¾ in in depth to allow soil filling and retention, composed of nylon, polypropylene, polyolefin, polyester, or rust inhibited metal.

**See 2575 for approximate quantities to achieve a 0.5 - 1 inch layer filling all voids on product surface.

Table 3885-6			
Permanent, Ultra High Performance Products			
Criteria	ASTM Number	Category 80	Category 90
Net Number (upper/lower)		Multilayered, Bonded Geogrid ¹	Bonded synthetic layer
Fiber Fill Material		Concrete ² units (D6684), with bottom attached ^A (80A) Category 25 with Category 60, or (80B) 3733 Geotextile Type 5	Concrete Polymer ³ 90A 0.20 inch 90B 0.30 inch 90C 0.50 inch
Topsoil infilling, 3877.2.C, "Sandy Clay Loam Topsoil Borrow"		Yes	No
Mass (lb) per sq yd, min.	D6475	0.64	0.5
Fiber Length (in), 80% greater than		Varies based on subcategory	DNA
Functional Longevity, 100% remaining (mo)	D4355	>36	>36
Target Service Life (mo)	D4355	>36	>36
Permissible shear (psf), unvegetated	D6459/ 6460	24	25
Flow (ft/s) probable maximum	D6460	30	35
MD Tensile Strength (lbs/ft), min	D6637	2055	1200
TD Tensile Strength (lbs/ft) min	D6637	2055	440
Permissible anchor Type		Bent #4 rebar, tension cable	Per Manufacturer
Minimum anchor embedment length (inches)		24	Per Manufacturer

^A Functional equivalent for shear, flow and functional longevity

¹ Geogrid, see Table 3885-7

² Concrete, see 3885.2.B.2 below.

³ Concrete Fabric Mat, see 3885.2.B.3 below.

B.1 Bonded Geogrid

Provide bonded geogrid with the physical characteristics shown in Table 3885-7.

Table 3885-7		
Geogrid Characteristics		
Criteria	ASTM Number	Requirement
Mass/Unit Area (min)	ASTM D-5261	0.43 lb/yd ²
Aperture Size (min)	Measured	1.6 x 1.6 inch
Wide Width Tensile Strength		
Elongation at Break (Max)	ASTM D-6637	6 %
Tensile Strength @ 2%		
Machine Direction (MD) (min)	ASTM D-6637	822 lb/ft

B.2 Concrete

Provide wet cast blocks meeting 2461, "Structural Concrete," and the following:

- (1) Manufactured in a plant with a Department Certified Ready-mix Program,
- (2) Design air content of 6.5 percent,
- (3) Absorption no greater than 7.0 percent when tested in accordance with ASTM C 140, and
- (4) Minimum Design Strength of 4000 psi at 28 days when tested in accordance with ASTM C 140.
- (5) The Contractor shall inspect the flexible concrete mats upon delivery. Flexible concrete Mats missing more than four concrete blocks per 80 square feet section shall be rejected.

B.3 Concrete Fabric Mat

Provide Concrete Fabric Mat (CFM) that is a cement impregnated fabric that hardens when hydrated to form a water resistant mat. It can be installed underwater and has a working time of several hours after hydration. It shall meet the following requirements of Table 3885-8 and 3885-9.

Table 3885-8 Physical Characteristics			
Type	Thickness (in)	Dry Weight (lb per sq ft)	Hydration, Min. water volume (gal per sq ft)
A	0.20	1.43	0.2
B	0.30	2.42	0.3
C	0.50	3.78	0.5

Table 3885-9 Concrete Characteristics		
Criteria	ASTM Number	Requirement
Freeze Thaw	ASTM C-1185	3400 lbs
Working Strength	ASTM D-5035	Length = 60 lb per sq ft; Width = 20 lb per sq ft
Puncture Resistance	ASTM D-6241	350 lbs
Manning's N	ASTM D-6460	0.011
Taber Abrasion	ASTM C-1353	7 times greater than 2500 psi OPC
Compressive Strength (10 day psi)	ASTM C-473-07	5800

Provide rolls capable of handling from spreader beams or bars. Provide proper storage and handling methods capable of dry storage until placement. Provide means capable of cutting into structure configurations and openings prior to hydration and again after placement as necessary for proper fit and transport of flowing water.

B.3.a Overlap and Lap-Joint Bonding Agents

Provide appropriate sealant capable of bonding to both the PVC backing and fiber surface of the Concrete Fabric Mat. The sealant must work in both wet and dry conditions prior to hydration and remain functional during hydration.

B.3.b Hydration Water

Provide water to the Concrete Fabric capable of surface saturation when no longer applying water for 2 minutes. Provide sufficient water 1 hour later on fabrics thicker than 0.5 inches, ditch grades greater than 2 percent, slopes greater than 3:1, and temperatures greater than 80 degrees Fahrenheit to complete the hydration process.

3885.3 SAMPLING AND TESTING

All approved products must be current in the NTPEP Program, with a testing cycle of every 3 years. Approved products for this specification are shown on the MnDOT Approved Products List website.

Provide documentation of the following for all products:

- (1) A published C-Factor appropriate to each category following requirements of ECTC Method 2 Rainfall, extrapolated to a 3 inch per hour rainfall or ASTM 6459.
- (2) Proof that the product enhances plant growth according to ASTM D7322.
- (3) Evidence that the product meets ECTC smolder resistance guidelines.

Target Service Life is the estimated time period that a product can be anticipated to prevent erosion, independent of vegetation, under environmental conditions occurring in Minnesota. These conditions include variations in temperature, moisture, light, soils, biological activity, vegetation establishment, etc.

Functional Longevity is the proxy for measuring Target Service Life (due to a lack of standard test methods). Seventy five percent of the product must remain in place for the specified duration under normal environmental conditions.

No field substitutions are permitted between Categories unless following the requirements of 1401, "Intent of Contract".

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The provisions set forth in MnDOT 1910 are hereby supplemented with the following:

These provisions provide for compensation adjustments in the cost of motor fuels (diesel and gasoline) consumed in prosecuting the Contract work. The Engineer will calculate the Fuel Cost Adjustments. Payments or credits will be applied to progress, semi-final and final payments for work items set forth herein.

For this purpose, the Department will establish a Base Fuel Index (BFI) for fuel to be used on the Project. The Base Fuel Index will be the average of the high and low rack prices shown for No. 2 ultra low sulfur fuel oil in the "OPIS Energy Group" tabulation titled "RackFax, Minneapolis, MN, OPIS Direct Gross No. 2 Distillate Fuels" *for the day of the Contract letting*.

A Current Fuel Index (CFI) in cents per gallon will be established for each week. The CFI will be the average of the high and low rack prices shown for No. 2 ultra low sulfur fuel oil in the "OPIS Energy Group" tabulation titled "RackFax, Minneapolis, MN, OPIS Direct Gross No. 2 Distillate Fuels" indicated each Friday.

The Engineer will compute the ratio of the Current Fuel Index to the Base Fuel Index (CFI/BFI) each week to the previous Friday's CFI. If that ratio falls between 0.85 and 1.15, no fuel adjustment will be made that week. If the ratio is less than 0.85, a credit to the Department will be computed. If the ratio is greater than 1.15, additional payment to the Contractor will be computed.

Credit or additional payment will be computed as follows:

- (1) The Engineer will estimate the quantity of work done in that week under each of the Contract items listed below.
- (2) The Engineer will compute the gallons of fuel used in that week for each of the Contract items listed below by applying the unit fuel usage factors shown.
- (3) The Engineer will determine the Fuel Cost Adjustment (FCA) from the following formulas:

If the Current Fuel Index (CFI) is greater than the Base Fuel Index (BFI), the following formula shall be used to determine the amount of Fuel Cost Adjustment to be paid to the Contractor.

$$FCA = [(CFI/BFI) - 1.15] \times Q \times BFI$$

If the Current Fuel Index (CFI) is less than the Base Fuel Index (BFI), the following formula shall be used to determine the amount of Fuel Cost Adjustment to be credited to the Department.

$$FCA = [(CFI/BFI) - 0.85] \times Q \times BFI$$

Where FCA = Fuel Cost Adjustment (cents)
CFI = Current Fuel Index (cents per gallon)
BFI = Base Fuel Index (cents per gallon)
Q = Weekly total gallons of fuel per item

Basis of Payment

A Fuel Cost Adjustment payment to the Contractor will be made as a price adjustment to each eligible item for each payment period based on the last published CFI. A Fuel Cost Adjustment credit to the Department will be deducted each payment period from any monies due the Contractor.

Schedule of Work Items

(Only items shown will be considered for compensation adjustments.)

Spec No	Item	Unit	Gallons of Fuel per Unit
Earthwork			
2105	Common Excavation	CY	0.17
2105	Rock Excavation	CY	0.27
2105	Muck Excavation	CY	0.17
2105	Subgrade Excavation	CY	0.17
2105	Unclassified Excavation	CY	0.23
2105	Granular Borrow (EV)	CY	0.17
2105	Granular Borrow (CV)	CY	0.19
2105	Granular Borrow (LV)	CY	0.14
2105	Select Granular Borrow (EV)	CY	0.17
2105	Select Granular Borrow (CV)	CY	0.19
2105	Select Granular Borrow (LV)	CY	0.14
2105	Common Borrow (EV)	CY	0.17
2105	Common Borrow (CV)	CY	0.19
2105	Common Borrow (LV)	CY	0.14
2105	Topsoil Borrow (EV)	CY	0.17
2105	Topsoil Borrow (CV)	CY	0.19
2105	Topsoil Borrow (LV)	CY	0.14
2106	Excavation - Common	CY	0.17
2106	Excavation - Subgrade	CY	0.17
2106	Excavation - Rock	CY	0.27
2106	Excavation - Muck	CY	0.17
2106	Common Embankment (CV)	CY	0.19
2106	Granular Embankment (CV)	CY	0.19
2106	Select Granular Embankment	CY	0.19
2106	Select Granular Embankment Modified (___ %) (CV)	CY	0.19

(1910) Fuel Escalation Clause

Dec 19, 2016

Spec No	Item	Unit	Gallons of Fuel per Unit
Aggregate Base			
2211	Aggregate Base	Ton	0.55
2211	Aggregate Base (LV)	CY	0.77
2211	Aggregate Base (CV)	CY	0.99
2211	Open Graded Aggregate Base (CV)	CY	0.99
Aggregate Shouldering			
2221	Shoulder Base Aggregate, Class _____	Ton	0.55
2221	Shoulder Base Aggregate (LV), Class _____	CY	0.77
2221	Shoulder Base Aggregate (CV), Class _____	CY	0.99
Concrete Pavements			
2301	Concrete Pavement _____ in	SY	0.027*t
2301	Place Concrete Pavement _____ in	SY	0.027*t
Bituminous Pavements			
2360	Type SP () Wearing Course Mixture()	Ton	0.90
2360	Type SP () Non-Wearing Course Mixture()	Ton	0.90
2360	Type () Mixture __ in thick	SY	0.051*t
Pipe***			
2501	_____ Pipe Culvert	Lin Ft	0.70
2501	_____ Pipe Arch Culvert	Lin Ft	0.70
2501	_____ Pipe Culvert Des 3006	Lin Ft	0.70
2503	_____ Pipe Sewer	Lin Ft	0.70
2503	_____ Pipe Arch Sewer	Lin Ft	0.70
2503	_____ Pipe Sewer Des 3006Culvert	Lin Ft	0.70

t = Thickness (in inches)

*** The Department will not pay adjustments for pipes less than 12" in diameter, jacked pipes, or directionally drilled pipes.

No price adjustments will be made on fuel used for drying and heating aggregates.

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Rolled Erosion Prevention Products: A comparison of categories for the 2020 edition of Standard Specification 3885

The new 2020 categories will appear in construction projects starting with the January 31, 2020 letting. Categories 20 through 35 (highlighted in green) are the most commonly used products on MnDOT projects.

Temporary Rolled Erosion Prevention Products			
2018 Specification	2020 Specification	Description	Purpose
NA	Category 10	Light-duty 1-sided natural net straw blanket	Light-duty stabilization and germination aid for filtration or infiltration basins
Category 0	Category 15	Light-duty net-free wood fiber blanket	Light-duty stabilization and germination aid for lawns and boulevards
Category 3, (P or N)	Category 20	Medium-duty 2-sided natural net straw blanket	Slopes \leq 3:1 & < 200 ft; Ditches \leq 1.5%
	Category 25	Medium-duty 2-sided natural net wood fiber blanket	Slopes \leq 2:1 & < 150 ft; Ditches \leq 5%
Category 4, (P or N)	Category 30	Med/heavy-duty 2-sided natural net straw coconut blanket	Slopes \leq 1.5:1 & < 100 ft; Ditches \leq 7% Cohesive soils
	Category 35	Med/heavy-duty 2-sided natural net wood fiber blanket	Slopes \leq 1:1 & < 50 ft; Ditches \leq 7% All soil types
NA	Category 45	Heavy-duty 2-sided natural net wood fiber blanket	Slopes \leq 0.75:1 & < 40 ft; Ditches \leq 9% All soil types
NA	Category 37	Medium-duty coconut fiber net	Ditches \leq 3.5%; Temporary or permanent conveyances on silty sand soils; Shoreline stabilization
NA	Category 47	Med/heavy-duty coconut fiber net	Shoreline stabilization in combination with structural and naturalized components
NA	Category 57	Heavy-duty coconut fiber net	Shoreline stabilization in combination with structural and naturalized components

Abbreviations:

NA	Not Applicable	P	Plastic	ECB	Erosion Control Blanket
SP	Special Provision	N	Natural	3D	Three dimension
A	Straw fiber	S	Side (number of nets)		
B	Wood fiber	TRM	Turf Reinforcement Mat		

Permanent Rolled Erosion Prevention Products			
2018 Specification	2020 Specification	Description	Purpose
Category 6	Category 50	Light duty surface applied turf reinforcement mat with synthetic and natural fiber components	Surface-applied shoot reinforcement for slopes and some conveyances
NA	Category 55	Medium duty surface applied turf reinforcement mat with synthetic and natural fiber components	Surface-applied shoot reinforcement for slopes and conveyances with flows to 11 ft/s
TRM Category 1	Category 60	Heavy duty surface applied fully synthetic turf reinforcement mat	Slopes $\leq 0.5:1$; lower ditch shear; 300 lb/ft tensile strength also used as a component of Category 80A
NA	Category 70	Light duty soil-filled synthetic turf reinforcement mat	Slopes $\leq 0.5:1$; lower ditch shear; 150 lb/ft tensile strength
TRM Category 2	Category 72	Medium duty soil-filled synthetic turf reinforcement mat	Slopes $\leq 0.5:1$; Medium ditch shear; 240 lb/ft tensile strength
TRM Category 3	Category 74	Heavy duty soil-filled synthetic turf reinforcement mat	Slopes $\leq 0.5:1$; Med-high ditch shear; 1400 lb/ft tensile strength
TRM Category 4	Category 76	Extra heavy duty soil-filled turf reinforcement mat	High ditch shear, slope shear 3000 lb/ft
Flexible Concrete Geogrid Mat	Category 80A	Concrete units bonded to blanket and turf reinforcement mat	Stormwater flumes, pond corners, stabilized pond overflows, pond maintenance cleanout access pathway, ditch and conveyance bottoms, culvert end scour control, flood flow and overtopping slope protection, with vegetation
NA	Category 80B	Concrete units bonded to geotextile	Same as above, but without vegetation
Concrete Fabric Mat	Category 90 (A, B, or C)	Concrete infused fabric	Temporary or permanent channel and pipe liner, bypass liner, down-drain flume liner, temporary public walk path, shotcrete alternative. A, B, & C are differentiated by thickness.

Abbreviations:

NA	Not Applicable	ECB	Erosion Control Blanket
SP	Special Provision	3D	Three dimension
A	Straw fiber		
B	Wood fiber		
P	Plastic		
N	Natural		
S	Side (number of nets)		
TRM	Turf Reinforcement Mat		

MnDOT Office of Environmental Stewardship - Erosion & Stormwater Management Unit

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