



PLANS AND SPECIFICATIONS
For
McCoy Hall Storm Sewer
CITY OF VALLEY CITY, NORTH DAKOTA



THE ABOVE HEREBY CERTIFY THAT THESE PLANS & SPECIFICATIONS
WERE PREPARED BY THEM OR UNDER THEIR DIRECT
SUPERVISION, AND THAT THEY ARE DULY
REGISTERED PROFESSIONAL ENGINEER(S) IN THE
STATE OF NORTH DAKOTA

5-6-2025

Project No. 2214-01380

Plans and Specifications for
McCoy Hall Storm Sewer Project
Valley City, North Dakota

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**SECTION 00100
ADVERTISEMENT FOR BIDS**

**McCOY HALL STORM SEWER PROJECT
VALLEY CITY STATE UNIVERSITY
VALLEY CITY, NORTH DAKOTA**

Sealed bids will be received by the Valley City State University, at the office of the Director of Facilities Services c/o of Jessica Gortmaker; Facilities Services Building; 101 College St SW; Valley City, ND 58072, until **10:00 AM CST, May 29, 2026**, at which time they will be publically opened and read aloud for the furnishing of materials, labor, equipment and skill required for the construction of **McCoy Hall Storm Sewer Project** and incidental items in and for said Valley City State University, as is more fully described and set forth in the plans and specifications therefore, which are now on file in the office of KLJ Engineering, 1010 4th Avenue SW; Valley City, ND 58072. Complete advertisement and digital project bidding documents are available at www.kljeng.com "Projects for Bid" or www.questcdn.com. You may download the digital plan documents for **\$22** by inputting Quest project # **10193290** on the website's Project Search page. Please contact QuestCDN at (952) 233-1632 or info@questcdn.com for assistance in free membership registration, downloading, and working with this digital project information. An optional paper set of project documents is also available for a non-refundable price of **\$72** per set at KLJ, 1010 4th Avenue SW, Valley City, ND. Please contact us at 701-845-9423 if you have any questions.

Dated this 8th day of May, 2026

**Valley City State University
Valley City, NORTH DAKOTA**

s/Jessica Gortmaker
Director of Facilities Services

Published 5/8, 5/15, 5/22, 2026

**SECTION 00200
INSTRUCTIONS TO BIDDERS**

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. *Bidder*—One who submits a Bid directly to Owner, as distinct from a sub-bidder, who submits a bid to a Bidder.
 - B. *Engineer*—Shall mean KLJ, Valley City, North Dakota.
 - C. *Issuing Office*—The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
 - D. *Owner*—Shall mean Valley City State University.
 - E. *Successful Bidder*—The lowest responsible Bidder submitting a responsive Bid to whom Owner (on the basis of Owner’s evaluation as hereinafter provided) makes an award.
 - F. Other terms used in the bidding documents and not defined elsewhere have the following meanings, which are applicable to both singular and plural thereof:
 - 1. Base Bid: Is the sum stated in the Bid for which the Bidder offers to perform work described in the Bidding Documents as Base, to which work may be added or from which work may be deleted for sums stated in alternate Bids.
 - 2. Alternate Bid: (Or alternate) is amount stated in Bid to be added or deducted from amount of Base Bid if corresponding change in work, as described in Bidding Documents, is accepted.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the advertisement or invitation to bid may be obtained from the Engineer.
- 2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder’s qualifications to perform the Work, within five days of Owner’s request, Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below.
- A. Each Bid must contain evidence of Bidder’s authority to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract.
 - B. Each Bid shall contain a copy of the North Dakota Contractor’s license or certificate of renewal thereof issued by the Secretary of state enclosed in the required Bid Bond envelope. No contract shall be awarded to any Contractor unless they are the holder of a license at least ten days prior to the date set for receiving Bids to be a qualified Bidder. A Bid submitted without this information properly enclosed in the Bid Bond envelope shall not be read or considered and shall be returned to the Bidder.
- 3.02 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder’s representations and certifications.

ARTICLE 4 – EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 Subsurface and Physical Conditions

- A. The Supplementary Conditions identify:
 - 1. Those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site.
 - 2. Those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. Copies of reports and drawings referenced in Paragraph 4.01.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the General Conditions has been identified and established in Paragraph 4.02 of 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.

4.02 Underground Facilities

- A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

4.03 *Hazardous Environmental Condition*

- A. The Supplementary Conditions identify any reports and drawings known to Owner relating to a Hazardous Environmental Condition identified at the Site.
- B. Copies of reports and drawings referenced in Paragraph 4.03.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.06 of the General Conditions has been identified and established in Paragraph 4.06 of 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.

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 4.06 of the General Conditions.

4.05 On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.

4.06 A. Reference is made to Article 7 of the Supplementary Conditions for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of contract documents (other than portions thereof related to price) for such other work.

B. Paragraph 6.13.C of the General Conditions indicates that if an Owner safety program exists, it will be noted in the Supplementary Conditions.

4.07 It is the responsibility of each Bidder before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, and the other related data identified in the Bidding Documents;
- B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

- C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in Paragraph 4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in the Paragraph 4.06 of the Supplementary Conditions as containing reliable "technical data";
- E. consider the information known to Bidder; 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 Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs;
- F. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and
- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 – PRE-BID CONFERENCE

5.01 A pre-Bid conference will not be held.

ARTICLE 6 – SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.

ARTICLE 8 – BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of five percent of Bidder's maximum Bid price and in the form of a Bid Bond issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions. The Bid Bond must be included with the Bid in a separate envelope attached to the outside of the envelope containing the Bid.

8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 10 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. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or the stated holding period has expired, whereupon Bid security furnished by such Bidders will be returned.

8.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

9.01 The number of days within which, or the dates by which, [Milestones are to be achieved and] the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND “OR-EQUAL” ITEMS

11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or those substitute or “or-equal” materials and equipment approved by Engineer and identified by Addendum. The materials and equipment described in the Bidding Documents establish a standard of required type, function and quality to be met by any proposed substitute or “or-equal” item. No item of material or equipment will be considered by Engineer as a substitute or “or-equal” unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids. Each such request shall conform to the requirements of Paragraph 6.05 of the General Conditions. 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 proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS AND OTHERS

12.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid.

12.02 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, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity 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 revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.

12.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

ARTICLE 13 – PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents. Additional copies may be obtained from Engineer.
- 13.02 All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternative, adjustment unit price item, and unit price item listed therein. In the case of optional alternatives the words “No Bid,” “No Change,” or “Not Applicable” may be entered.
- 13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown.
- 13.04 A Bid by a partnership shall 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 shall be shown.
- 13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 13.06 A Bid by an individual shall show the Bidder’s name and official address.
- 13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.08 All names and titles shall be typed or clearly printed in ink below the signatures.
- 13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form. Bids in which all issued Addenda are not acknowledged will be considered incomplete and will not be read.
- 13.10 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.11 The Bid shall contain evidence of Bidder’s authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder’s state contractor license number, if any, shall also be shown on the Bid Form.

13.12 The Bidder may substitute a computer printed spreadsheet bid schedule for the Bid Schedule found in the Bid Form (Section 00300). The substitute schedule shall be attached to the last page of the supplied Bid form (Section 00300).

- A. The following information shall appear on top of each page of the computer printed bid schedule:
 - 1. Project Name
 - 2. Date of Bid Opening
 - 3. Location (as defined in Advertisement for Bids)
 - 4. Description of Work (from Advertisement for Bids)
 - 5. Page Number
 - 6. Bidder's Name and Address
 - 7. Acknowledgement of Addenda
- B. The substitute bid schedule shall be printed on sheets of approximately the same size as the bid schedule in the Bid Form, and the words and numerals shall be clear and legible. Each page shall be arranged, numbered, and contain the same bid items as the corresponding bid schedule in the Bid Form. Column headings shall be the same as those in the standard Bid Schedule furnished with the specifications.
- C. Each bid item shall be separated from the bid items above and below it by one or more blank spaces. Solid lines for separating columns and items are not required, but dashed lines may be placed either vertically or horizontally.
- D. The total sum(s) of the bid shall be entered at the same relative location as on the standard Bid Schedule.
- E. The Bidder, or authorized representative, shall sign the substitute bid schedule in ink on the last page of the computer printout. The signer's name and title shall be printed below or beside the signature. The person signing the schedule shall sign and complete the Affidavit in the Bidders Proposal, as normally required.
- F. In case of discrepancies between item descriptions or quantities in the Bid Schedule on the Bid Form (Section 00300) and those on the computer printed bid schedule, the Bid Schedule on the Bid Form (Section 00300) will govern. Any omitted items or missed items will be considered as "zero", and no payment will be considered for that item.

ARTICLE 14 – BASIS OF BID; COMPARISON OF BIDS

14.01 *Unit Price*

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.

- B. The total of all estimated prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 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 15 – SUBMITTAL OF BID

- 15.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security other required documents.
- 15.02 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 and shall be enclosed in an opaque sealed envelope, plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation “**BID ENCLOSED.**” A mailed Bid shall be addressed to the address shown on the Advertisement or Invitation to Bid.
- 15.03 Attached to the outside of the opaque sealed Bid envelope shall be a separate sealed envelope indentifying the name of the Bidder and containing the following:
 - A. Copy of current Contractor’s License or renewal certificate
 - B. Bid Security as defined in Article 8 herein

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

- 16.01 A Bid may be modified or 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.
- 16.02 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, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 – OPENING OF BIDS

- 17.01 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 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 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 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder. Owner reserves the right to reject the Bid of any Bidder if Owner believes it would not be in the best interest of the Project to make award to that Bidder whether because Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by the Owner.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, Owner will consider whether or not 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.

19.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.

19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work in accordance with the Contract Documents.

19.06 If the Contract is to be awarded, Owner will award the Contract to the lowest responsible Bidder whose Bid is in the best interests of the Project.

ARTICLE 20 – CONTRACT SECURITY AND INSURANCE

20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.

ARTICLE 21 – SIGNING OF AGREEMENT

21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement along with the other Contract Documents which are identified in the Agreement as attached thereto. Within 10 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. After Owner's attorney has reviewed and approved the submitted documents, Owner shall deliver one fully signed counterpart to Successful Bidder.

ARTICLE 22 – STATE LAWS AND REGULATIONS

22.01 All applicable laws, ordinances and the rules and regulations of authorities having jurisdiction over construction of the project shall apply to the Contract throughout.

ARTICLE 23 – RETAINAGE

23.01 Provisions concerning Contractor's rights to deposit securities in lieu of retainage are set forth in the Agreement.

**SECTION 00300
BID FORM**

PROJECT IDENTIFICATION

MCCOY HALL STORM SEWER

ARTICLE 1 - BID RECIPIENT

1.01 This Bid is submitted to:

Jessica Gortmaker
Director of Facilities
Valley City State University
101 College St SW
Valley City, ND 58072

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

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

<u>Addendum No.</u>	<u>Addendum Date</u>
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in SC-4.02 as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in SC-4.06 as containing reliable "technical data."
- E. Bidder has considered the information known to Bidder; 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 Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. 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.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- 1. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. 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;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

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;
2. “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;
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.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

UNIT PRICE BID

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1.	CONTRACT BOND	L SUM	1	\$	\$
2.	MOBILIZATION	L SUM	1	\$	\$
3.	TRAFFIC CONTROL	L SUM	1	\$	\$
4.	ROADWAY PAVEMENT REMOVAL	SY	137.2	\$	\$
5.	SUPERPAVE FAA 43	TON	34.3	\$	\$
6.	SALVAGED BASE COURSE	TON	75.1	\$	\$
7.	REMOVE AND REPLACE SIDEWALK	SY	75.1	\$	\$
8.	REMOVE AND REPLACE CURB & GUTTER	LF	20	\$	\$
9.	STORM SEWER 18" RCP	LF	36	\$	\$
10.	STORM SEWER 18" PVC or HDPE	LF	193	\$	\$
11.	30 INCH MANHOLE	EA	1	\$	\$
12.	48 INCH MANHOLE	EA	2	\$	\$
13.	STORM SEWER ABANDONMENT	L SUM	1	\$	\$
14.	CLEARING, GRUBBING, TOPSOIL AND SEEDING	L SUM	1	\$	\$
Total of All Bid Prices					\$

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before August 14th, 2026.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
 - A. Required Bid security in the form of 5% Bid Bond (in separate envelope);
 - B. Copy of contractor's license or certificate of renewal (in separate envelope);

ARTICLE 8 – DEFINED TERMS

- 8.01 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 9 – BID SUBMITTAL

9.01 This Bid is submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____
(Individual’s signature)

Doing business as: _____

A Partnership

Partnership Name: _____

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____
(CORPORATE SEAL)

Attest _____

Date of Qualification to do business in [State where Project is located] is
____ / ____ / ____.

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Bidder's Business Address _____

Phone No. _____ Fax No. _____

E-mail _____

SUBMITTED on _____, 20____.

State Contractor License No. _____.

BID BOND (PENAL SUM FORM)

Bidder Name: [Full formal name of Bidder] Address <i>(principal place of business)</i> : [Address of Bidder's principal place of business]	Surety Name: [Full formal name of Surety] Address <i>(principal place of business)</i> : [Address of Surety's principal place of business]
Owner Name: Valley City State University Address <i>(principal place of business)</i> : 101 College St SW Valley City, ND 58072	Bid Project <i>(name and location)</i> : [Owner project/contract name, and location of the project] Bid Due Date: [Enter date bid is due]
Bond Penal Sum: [Amount] Date of Bond: [Date]	
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 _____ <i>(Full formal name of Bidder)</i>	Surety _____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.	

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

NOTICE OF AWARD

Date of Issuance:

Owner: Valley City State University

Owner's Project No.:

Engineer: KLJ Engineering, LLC

Engineer's Project No.: 2214-01380

Project: McCoy Hall Storm Sewer

Contract Name: McCoy Hall Storm Sewer

Bidder:

Bidder's Address:

You are notified that Owner has accepted your Bid dated **Month Day, Year** for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

[Describe Work, alternates, or sections of Work awarded]

The Contract Price of the awarded Contract is \$**Total**. 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.

Three (3) 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 (3)** counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): **[Describe other conditions that require Successful Bidder's compliance]**

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

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

Owner: **Valley City State University**

By (signature): _____

Name (printed): _____

Title: _____

Copy: Engineer

SECTION 00520

**STANDARD FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR**

THIS AGREEMENT is by and between Valley City State University (“Owner”) and
_____ (“Contractor”).

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:

Storm Sewer, Sidewalk and Road Restoration

ARTICLE 2 – THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

McCoy Hall Storm Sewer

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by KLJ Engineering LLC, which is to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time 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 *Dates for Substantial Completion and Final Payment*

A. The Work will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before August 14, 2026.

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. 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), Contractor shall pay Owner **\$700** for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 – CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A below:

- A. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the actual quantity of that item. Unit prices are those listed in the Unit Price Schedule of the Bid Form attached as Exhibit A to the agreement.

The Bid prices for Unit Price Work set forth as of the Effective Date of the Agreement are based on estimated quantities. As provided in Paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the General Conditions.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 14 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 on or about the once each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of 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 in the General Requirements.
 - 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 Engineer may determine or Owner may withhold, including but not

limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.

- a. Ninety (90) percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
 - b. Ninety (90) percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to (97.5) percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

ARTICLE 7 – INTEREST

- 7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the maximum rate allowed by law at the place of the Project.

ARTICLE 8 – CONTRACTOR’S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
 - B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Paragraph SC-4.06 of the Supplementary Conditions as containing reliable "technical data."

- E. Contractor has considered the information known to Contractor; 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 Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that 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 Documents.
- G. 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.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 Contents

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to 7, inclusive).
 - 2. Performance bond (pages 1 to 2, inclusive).
 - 3. Payment bond (pages 1 to 2, inclusive).
 - 4. Other bonds (pages _____ to _____, inclusive).
 - a. _____ (pages _____ to _____, inclusive).
 - b. _____ (pages _____ to _____, inclusive).
 - c. _____ (pages _____ to _____, inclusive).
 - 5. General Conditions (pages 1 to 62, inclusive).
 - 6. Supplementary Conditions (pages 1 to 6, inclusive).

7. Specifications as listed in the table of contents of the Project Manual.
 8. Drawings consisting of 5 sheets with each sheet bearing the following general title: McCoy Hall Storm Sewer
 9. Addenda (numbers _____ to _____, inclusive).
 10. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages _____ to _____, inclusive).
 - b. Documentation submitted by Contractor prior to Notice of Award (pages _____ to _____, inclusive).
 11. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed (pages 1 to 1, inclusive).
 - b. Work Change Directives.
 - c. Change Orders.
- B. The documents listed in Paragraph 9.01.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 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General 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. 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, moneys that may become due and moneys that are 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 partners, successors, assigns, and legal representatives to the other party hereto, its partners, 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.

10.05 *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 10.05:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing 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.

10.06 *Other Provisions*

None

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

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

OWNER:

CONTRACTOR:

Signature

Signature

By: _____

By: _____

Title: _____

Title: _____

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

Attest: _____
Signature

Attest: _____
Signature

By: _____

By: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

License No.: _____

(Where applicable)

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

Agent for service of process:

NOTICE TO PROCEED

Owner: Valley City State University Owner's Project No.: _____
Engineer: KLJ Engineering, LLC Engineer's Project No.: 2214-01380
Contractor: _____ Contractor's Project No.: _____
Project: McCoy Hall Storm Sewer
Contract Name: _____
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.

In accordance with the Agreement: **[Select one of the following two alternatives, insert dates or number of days, and delete the other alternative.]**

The date by which Substantial Completion must be achieved is **[date for Substantial Completion, from Agreement]**, and the date by which readiness for final payment must be achieved is **[date for readiness, from Agreement]**.

[or]

The number of days to achieve Substantial Completion is **[number of days, from Agreement]** from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of **[date, calculated from commencement date above]**; and the number of days to achieve readiness for final payment is **[number of days, from Agreement]** from the commencement date of the Contract Times, resulting in a date for readiness for final payment of **[date, calculated from commencement date above]**.

Before starting any Work at the Site, Contractor must comply with the following:

[Note any access limitations, security procedures, or other restrictions]

Owner: Valley City State University
By (signature): _____
Name (printed): _____
Title: _____
Date Issued: _____
Copy: Engineer

PERFORMANCE BOND

<p>Contractor</p> <p>Name: [Full formal name of Contractor]</p> <p>Address <i>(principal place of business)</i>: [Address of Contractor's principal place of business]</p>	<p>Surety</p> <p>Name: [Full formal name of Surety]</p> <p>Address <i>(principal place of business)</i>: [Address of Surety's principal place of business]</p>
<p>Owner</p> <p>Name: Valley City State University</p> <p>Mailing address <i>(principal place of business)</i>: 101 College St SW Valley City, ND 58072</p>	<p>Contract</p> <p>Description <i>(name and location)</i>: [Owner's project/contract name, and location of the project]</p> <p>Contract Price: [Amount from Contract]</p> <p>Effective Date of Contract: [Date from Contract]</p>
<p>Bond</p> <p>Bond Amount: [Amount]</p> <p>Date of Bond: [Date] <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 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>	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<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 for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
 - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

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

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

14. Definitions

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

PAYMENT BOND

<p>Contractor</p> <p>Name: [Full formal name of Contractor]</p> <p>Address (<i>principal place of business</i>): [Address of Contractor's principal place of business]</p>	<p>Surety</p> <p>Name: [Full formal name of Surety]</p> <p>Address (<i>principal place of business</i>): [Address of Surety's principal place of business]</p>
<p>Owner</p> <p>Name: Valley City State University</p> <p>Mailing address (<i>principal place of business</i>): 101 College St SW Valley City, ND 58072</p>	<p>Contract</p> <p>Description (<i>name and location</i>): [Owner's project/contract name, and location of the project]</p> <p>Contract Price: [Amount, from Contract]</p> <p>Effective Date of Contract: [Date, from Contract]</p>
<p>Bond</p> <p>Bond Amount: [Amount]</p> <p>Date of Bond: [Date]</p> <p><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>	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<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**

Contractor's Application for Payment

Owner: _____	Owner's Project No.: _____
Engineer: _____	Engineer's Project No.: _____
Contractor: _____	Contractor's Project No.: _____
Project: _____	
Contract: _____	

Application No.: _____ **Application Date:** _____

Application Period: From _____ to _____

1. Original Contract Price	\$	-
2. Net change by Change Orders	\$	-
3. Current Contract Price (Line 1 + Line 2)	\$	-
4. Total Work completed and materials stored to date (Sum of Column G Lump Sum Total and Column J Unit Price Total)	\$	-
5. Retainage		
a. _____ X \$ _____ Work Completed	\$	-
b. _____ X \$ _____ Stored Materials	\$	-
c. Total Retainage (Line 5.a + Line 5.b)	\$	-
6. Amount eligible to date (Line 4 - Line 5.c)	\$	-
7. Less previous payments (Line 6 from prior application)		
8. Amount due this application	\$	-
9. Balance to finish, including retainage (Line 3 - Line 4)	\$	-

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:

(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;

(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such liens, security interest, or encumbrances); and

(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor: _____

Signature: _____ **Date:** _____

Recommended by Engineer	Approved by Owner
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Date: _____
Approved by Funding Agency	
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Date: _____

Progress Estimate - Lump Sum Work

Contractor's Application for Payment

Owner: _____
 Engineer: _____
 Contractor: _____
 Project: _____
 Contract: _____

Owner's Project No.: _____
 Engineer's Project No.: _____
 Contractor's Project No.: _____

Application No.: _____ Application Period: From _____ to _____ Application Date: _____

A	B	C	D E		F	G	H	I
Item No.	Description	Scheduled Value (\$)	Work Completed		Materials Currently Stored (not in D or E) (\$)	Work Completed and Materials Stored to Date (D + E + F) (\$)	% of Scheduled Value (G / C) (%)	Balance to Finish (C - G) (\$)
			(D + E) From Previous Application (\$)	This Period (\$)				
Change Orders								
						-		-
						-		-
						-		-
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Change Order Totals		\$ -	\$ -	\$ -	\$ -	\$ -		\$ -
Original Contract and Change Orders								
Project Totals		\$ -	\$ -	\$ -	\$ -	\$ -		\$ -

Progress Estimate - Unit Price Work

Contractor's Application for Payment

Owner:		Owner's Project No.:	
Engineer:		Engineer's Project No.:	
Contractor:		Contractor's Project No.:	
Project:			
Contract:			

Application No.: _____ Application Period: From _____ to _____ Application Date: _____

A	B	C	D	E	F	G	H	I	J	K	L
Bid Item No.	Description	Contract Information				Work Completed		Materials Currently Stored (not in G) (\$)	Work Completed and Materials Stored to Date (H + I) (\$)	% of Value of Item (J / F) (%)	Balance to Finish (F - J) (\$)
		Item Quantity	Units	Unit Price (\$)	Value of Bid Item (C X E) (\$)	Estimated Quantity Incorporated in the Work	Value of Work Completed to Date (E X G) (\$)				
Change Orders											
					-		-		-		-
					-		-		-		-
					-		-		-		-
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					-		-		-		-
					-		-		-		-
Change Order Totals					\$ -		\$ -	\$ -	\$ -		\$ -
Original Contract and Change Orders											
Project Totals					\$ -		\$ -	\$ -	\$ -		\$ -

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner: _____ Owner's Project No.: _____
Engineer: _____ Engineer's Project No.: _____
Contractor: _____ Contractor's Project No.: _____
Project: _____
Contract Name: _____

This Preliminary Final Certificate of Substantial Completion applies to:

All Work The following specified portions of the Work:

[Describe the portion of the work for which Certificate of Substantial Completion is issued]

Date of Substantial Completion: **[Enter date, as determined by Engineer]**

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work must be as provided in the Contract, except as amended as follows:

Amendments to Owner's Responsibilities: None As follows:

[List amendments to Owner's Responsibilities]

Amendments to Contractor's Responsibilities: None As follows:

[List amendments to Contractor's Responsibilities]

The following documents are attached to and made a part of this Certificate:

[List attachments such as punch list; other documents]

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Engineer

By *(signature)*: _____

Name *(printed)*: _____

Title: _____

FINAL REVIEW AND ACCEPTANCE

CONTRACTOR: [REDACTED]

CONTRACTOR ADDRESS: [REDACTED]

PROJECT NAME: [REDACTED]

OWNER: [REDACTED]

OWNER ADDRESS: [REDACTED]

On this Date, [REDACTED], a final review of the project as constructed was made.

The Contractor hereby certifies that the construction is completed in accordance with the plans and specifications, approved Change Orders, and terms of the contract. The Contractor further certifies that there are no unpaid bills or labor disputes in connection with this contract and that the amount of \$ [REDACTED] shown on the final estimate is the total remaining amount due for all work completed for the project.

The making and acceptance of final payment will constitute a waiver of all Claims by Owner against Contractor, except Claims arising from defective Work appearing after final inspection, from failure to comply with the Contract Documents or the terms of any special guarantees or warranties specified therein, or from Contractor's continuing obligations under the Contract Documents. The making and acceptance of final payment will constitute a waiver of all future Claims by Contractor against Owner other than those previously made and expressly acknowledged by Owner in writing as still unsettled.

The undersigned Owner does hereby agree that all construction and engineering work on the project is complete and does satisfy all terms of appropriate construction or engineering agreements.

Owner and Contractor do hereby acknowledge that the one year warranty period will begin on [REDACTED].

(Owner Signature)

(Contractor Signature)

By: _____
(Typed or Printed Name)

By: _____
(Typed or Printed Name)

Date: _____

Date: _____

Witnessed By: Kadrmas, Lee & Jackson, Inc.

(Engineer Signature)

By: _____
(Typed or Printed Name)

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.

SECTION 00700 STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by



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A Practice Division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. 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 which is evidence of the agreement between Owner and Contractor covering the Work.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. *Change Order*—A document recommended by Engineer 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, issued on or after the Effective Date of the Agreement.
 10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer’s written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given 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 under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *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.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *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 for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *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 at the Site.
44. *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 thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, 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 Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *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, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. 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 Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. 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 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean 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, shall mean 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, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. 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 Bonds and Evidence of Insurance

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 Copies of Documents

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement 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 Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), 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 Documents;
 - 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.

2.06 *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 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, 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 instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial 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 for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall 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 therefore.

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 component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one 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. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
 1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement 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, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, 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 Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, 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) any standard, specification, manual, or code, or (c) 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 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
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 Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); 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 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
 1. A Field Order;
 2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier 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 editions; or
 2. 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.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor 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. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the

Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefore as provided in Paragraph 10.05.

- 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 the Work is to be performed 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.

4.02 *Subsurface and Physical Conditions*

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

- 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
- 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "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; or
- 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.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

- 1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
- 2. is of such a nature as to require a change in the Contract Documents; or

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 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition 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 meet any one or more of the categories described in Paragraph 4.03.A; and
 - 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 Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final 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
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefore as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, 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 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract

Price or Contract Times, Owner or Contractor may make a Claim therefore as provided in Paragraph 10.05.

4.05 *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.

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "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; or
 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 any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by

Paragraph 6.16.A); and (iii) 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 4.06.E.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. 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, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefore as provided in Paragraph 10.05.
- F. 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. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefore as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. 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 or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. 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 a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 Performance, Payment, and Other Bonds

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds 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 shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 Licensed Sureties and Insurers

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverage so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 Certificates of Insurance

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed 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:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
 - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
 - 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
 - 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
2. include at least the specific coverage and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property

insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall, in writing, advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their 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 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 Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (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. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. 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:
 - 1. loss 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 perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery

against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, 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. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *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. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *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 at all times maintain good discipline and order at the Site.
- B. 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 shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *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.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall 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 shall 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.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 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 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description 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 or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
1. "*Or-Equal*" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it 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; and
 - 3) it has a proven record of performance and availability of responsive service.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefore. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:
 - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) 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
 - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - 3) will identify:
 - a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services; and

- 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. 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.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or

other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (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 any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *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 a particular 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 shall be disclosed by Owner 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.

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. 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 opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *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. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear 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. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefore as provided in Paragraph 10.05.

6.10 *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.

6.11 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. 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 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 by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall 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 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 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 property to stresses or pressures that will endanger it.

6.12 *Record Documents*

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

6.13 *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. 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, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. 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. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

- D. 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.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.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 (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).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

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

6.16 *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 threatened 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 thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*
 - a. Submit number of copies specified in the General Requirements.
 - b. Data shown on the Shop Drawings will 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 6.17.D.
 2. *Samples:*
 - a. Submit number of Samples specified in the Specifications.
 - b. 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 6.17.D.
- B. 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. *Submittal Procedures:*
1. Before submitting each Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
 2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
 3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop

Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. 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, conform to the information given in 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 (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.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's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

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.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *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 and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper 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.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
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 or the issuance of a notice of acceptability by Engineer;
 6. any inspection, test, or approval by others; or
 7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. 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 performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury 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 6.20.A shall 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.

- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefore, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
1. written notice thereof will be given to Contractor prior to starting any such other work; and
 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefore as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. 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. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, 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.

7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

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

8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *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.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *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 Documents.

8.12 *Compliance with Safety Program*

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 pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *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 Documents.

9.02 *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 9.09. 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.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which 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. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefore as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. 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, subject to the provisions of Paragraph 10.05.

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

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents 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 shall 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 Paragraph 14.07.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 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *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 by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefore as provided in Paragraph 10.05.

10.02 *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 as provided in Paragraph 3.04, except in the

case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 2. changes in the 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; and
 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *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.

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B.

Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
 2. approve the Claim; or
 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 Cost of the Work

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall 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. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers'

compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall 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 shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall 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, who 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 shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including 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, and hand tools not owned by the workers, 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.
 - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the 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 property insurance established in accordance with Paragraph 5.06.D), 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 shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall 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 telegrams, long distance telephone calls, telephone 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 Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety 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 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
4. 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.
5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 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:*
 - 1. Contractor agrees that:
 - a. 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
 - b. 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 on account of any of the foregoing will be valid.
- C. *Contingency Allowance:*
 - 1. Contractor agrees that a 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 on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 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. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

- 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. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for 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, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 - 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 - 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee*: The Contractor's fee for overhead and profit shall 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 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
- b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five 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 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
- d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
- e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefore as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, 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 the Contract Price or the Contract Times, or both. Contractor's

entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 Notice of Defects

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will 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 therewith as applicable.

13.03 Tests and Inspections

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 3. as otherwise specifically provided in the Contract Documents.
- 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 and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
 - E. 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.
 - F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, 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, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay 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 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 Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefore as provided in Paragraph 10.05.
- D. 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, or both, 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, Contractor may make a Claim therefore as provided in Paragraph 10.05.

13.05 *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, 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 shall 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.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay 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 correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *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 terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. repair such defective land or areas; or
 - 2. correct such defective Work; or
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If 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. 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 correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

- C. 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.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, 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.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay 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) 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 pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefore as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *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 rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, 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, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, 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 (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) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefore as provided in Paragraph 10.05. 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 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Schedule of Values

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 Progress Payments

A. 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. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

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

B. Review of Applications:

1. Engineer will, within 10 days after receipt of each Application for Payment, 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 9.07, 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 Documents; 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, or

- b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, 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 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment:

- 1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. 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;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or

- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action 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, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *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 (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- 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 therefore.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefore. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities

pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

- E. 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 tentative list.

14.05 *Partial Utilization*

- 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. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and 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 14.04.A through D for that part of the Work.
 - 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and 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 therefore. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 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 5.10 regarding property insurance.

14.06 *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 is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *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, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) 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.

B. *Engineer's Review of Application and Acceptance:*

1. 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 Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. 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. *Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
 1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
 2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *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 notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefore as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will 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 established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 2. 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
 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.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 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) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed 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.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. 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. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven 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;
 3. 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) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven 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 15.03.
- 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, seven 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 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 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 16 – DISPUTE RESOLUTION

16.01 Methods and Procedures

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
 - 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agrees with the other party to submit the Claim to another dispute resolution process; or
 - 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 Giving Notice

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 Computation of Times

- A. When any period of time is referred to in the Contract Documents 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.

17.03 *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 Documents. 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.

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

SECTION 00800

SUPPLEMENTARY CONDITIONS TO STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC C-700 (2007 Edition). All provisions which are not so amended or supplemented remain in full force and effect. 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 thereto.

SC-2.02 Copies of Documents

Delete Paragraph 2.02.A in its entirety and insert the following in its place:

- A. Owner shall furnish to Contractor 0 printed or hard copies of the Drawings and Project Manual and one set in electronic format. Copies will be furnished upon request at the cost of reproduction.

SC-2.07 Initial Acceptance of Schedules

Add the following language to Paragraph 2.07.A:

- Said conference, if deemed necessary by the Engineer, will be held at the place and on the date and time established by the Engineer.

SC-4.02 Subsurface and Physical Conditions

Delete Paragraphs 4.02.A and 4.02.B in their entirety and insert the following:

- A. No 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.

SC-4.05 Reference Points

Add the following to Paragraph 4.05.A:

- Contractor shall be responsible for all costs in reestablishing any reference point lost or damaged. All such costs shall be paid within 30 calendar days of being presented a billing invoice. Any amount not paid shall be withheld from the Contractor's next partial payment and all subsequent payments, including the final payment, unless proof of payment is received by Owner.

SC-4.06 Hazardous Environmental Conditions

Delete Paragraphs 4.06.A and 4.06.B in their entirety and insert the following:

- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.
- B. Not Used.

SC-5.02 Licensed Sureties and Insurers

Add Paragraph 5.02.B and 5.02.C:

- B. Without limiting any of the other obligations or liabilities of the Contractor, Contractor shall secure and maintain appropriate insurance that will protect the Contractor, the vicarious acts of subcontractors, the Owner and the Engineer and their agents and employees from claims for bodily injury, or property damage which may arise from operations under this Agreement. Insurance shall be purchased for an insurance company (or companies) authorized to write insurance in the project jurisdiction, with minimum "A.M. Best Rating" of A-, VI. Contractor shall not commence work under this Agreement until such insurance has been obtained and certificates of insurance, with binders, or certified copies of the insurance policy shall have been filed with the Owner and the Engineer.
- C. All insurance coverage shall remain in effect throughout the life of the Agreement, except that the Contractor shall maintain the Commercial General Liability Policy including product and completed operations coverage for a period of at least one year following the substantial completion date to cover any property damage resulting from the occurrences during the agreement period or which may occur or become visible/know within the one-year warranty period.

SC-5.04 Contractor's Insurance

Delete Paragraph 5.04.B.3:

Add the following new paragraph 5.04.C immediately after Paragraph 5.04.B:

- C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 5.04.A.1 and 5.04.A.2 of the General Conditions:
 - a. State: Statutory
 - b. Applicable Federal (e.g., Longshoreman's): Statutory
 - c. Employer's Liability: The policy shall include a "stop-gap" Employers Liability endorsement to cover the employer's liability for injury to employees which fall outside the Statutory Worker's Compensation Law.

2. Contractor's Commercial General and Commercial Automobile Liability under Paragraphs 5.04.A.3 through 5.04.A.6 of the General Conditions which shall include completed operations and product liability coverages:
 - a. Commercial General Liability
 - 1) General Aggregate: \$2,000,000
 - 2) Each Occurrence (Bodily Injury and Property Damage) \$1,000,000
 - b. Products and Completed Operations Aggregate: \$2,000,000
 - c. Property Damage liability insurance will provide Explosion, Collapse, and Under-ground coverages where applicable.
 - d. Excess or Umbrella Liability
 - 1) General Aggregate: \$1,000,000
 - 2) Each Occurrence: \$1,000,000
 - g. Commercial Automobile Liability
 - 1) Combined Single Limit (Bodily Injury and Property Damage): \$1,000,000 each accident

3. The Commercial General Liability and Commercial Automobile policies shall provide an additional insured endorsement in favor of the following parties:
 - a. KLJ Engineering LLC and its Consultants
 - b. Valley City State University

4. The Commercial General Liability and Automobile policies shall contain a "Waiver of Subrogation" to waive any right of recovery that the Insurance Company may have against KLJ Engineering LLC and the Owner.

SC-6.17 Shop Drawings and Samples

Add the following new paragraphs immediately after Paragraph 6.17.E:

- F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, samples, or other items requiring approval and Contractor shall reimburse Owner for Engineer's charges for such time.
- G. In the event that Contractor requests a change of a previously approved item, Contractor shall reimburse Owner for Engineer's charges for its review time unless the need for such change is beyond the control of Contractor.

SC-6.19 Contractor's General Warranty and Guarantee

Add the following new paragraph immediately after Paragraph 6.19.C:

- D. The CONTRACTOR shall guarantee all work and materials and guarantee the performance of the finished project free from material defect or failure for a period of one (1) year from the date of final payment, and the performance bond shall remain in full force and effect for the period. The CONTRACTOR shall provide this warranty regardless of whether the cause of a failure is known or attributable to the CONTRACTOR except for damage caused by a third party by no fault of the CONTRACTOR.

SC-7.02 Coordination

Delete Paragraph 7.02.A in its entirety and replace with the following:

- A. If the Owner awards multiple prime contracts (General, Mechanical, Electrical) construction work on the Project at the Site.
 - 1. The General Contractor shall have full authority and responsibility for coordination of the various contractors at the Site;
 - 2. The following specific matters are to be covered by such authority and responsibility:
 - a. Scheduling, submittals and overseeing work of subcontractors
 - b. Coordinate space requirements for subcontractors
 - c. Verify utility requirements for subcontractors
 - d. Protect completed work of all parties

- e. Coordinate completion, start-up and cleanup
- f. Follow-up with Owner on correcting defective work

SC-7.04 Claims between Contractors

Add the following new paragraph immediately after paragraph GC-7.03:

SC-7.04 *Claims between Contractors*

- 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.
- 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.
- 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.

SC-11.03 Unit Price Work

Delete Paragraph 11.03.D in its entirety and insert the following in its place:

- D. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:
1. if the Bid price of a particular item of Unit Price Work amounts to 20 percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and
 2. if there is no corresponding adjustment with respect to any other item of Work; and
 3. 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.

SC-17 Miscellaneous

Add the following new paragraph immediately after Paragraph 17.06 when project is located on a North Dakota campus or State owned property:

- A. Owner has an obligation to make information available to campus on where to get information about Registered Sex Offenders who are working on State owned property. Contractor is therefore obligated to inform the campus police or security office or the appropriate campus office, in advance, of employees being on State owned property, of any such employee who is a Registered Sex Offender. This obligation includes property owned or controlled by Owner that is at locations other than the main campus.

WORK CHANGE DIRECTIVE NO.: [Number of Work Change Directive]

Owner: _____ Owner's Project No.: _____
Engineer: _____ Engineer's Project No.: _____
Contractor: _____ Contractor's Project No.: _____
Project: _____
Contract Name: _____
Date Issued: _____ Effective Date of Work Change Directive: _____

Contractor is directed to proceed promptly with the following change(s):

Description:

[Description of the change to the Work]

Attachments:

[List documents related to the change to the Work]

Purpose for the Work Change Directive:

[Describe the purpose for the change to the Work]

Directive to proceed promptly with the Work described herein, prior to agreeing to change in Contract Price and Contract Time, is issued due to:

Notes to User—Check one or both of the following

Non-agreement on pricing of proposed change. Necessity to proceed for schedule or other reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price: \$ _____ **[increase] [decrease] [not yet estimated].**

Contract Time: _____ days **[increase] [decrease] [not yet estimated].**

Basis of estimated change in Contract Price:

Lump Sum Unit Price Cost of the Work Other

Recommended by Engineer

Authorized by Owner

By: _____

Title: _____

Date: _____

CHANGE ORDER NO.: [Number of Change Order]

Owner:	Owner's Project No.:
Engineer:	Engineer's Project No.:
Contractor:	Contractor's Project No.:
Project:	
Contract Name:	
Date Issued:	Effective Date of Change Order:

The Contract is modified as follows upon execution of this Change Order:

Description:

[Description of the change]

Attachments:

[List documents related to the change]

Change in Contract Price	Change in Contract Times [State Contract Times as either a specific date or a number of days]
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. [Number of previous Change Order] : \$ _____	[Increase] [Decrease] from previously approved Change Orders No.1 to No. [Number of previous Change Order] : Substantial Completion: _____ Ready for final payment: _____
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] this Change Order: \$ _____	[Increase] [Decrease] this Change Order: Substantial Completion: _____ Ready for final payment: _____
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for final payment: _____

Recommended by Engineer (if required)

Authorized by Owner

By: _____

Title: _____

Date: _____

Accepted by Contractor

Approved by Funding Agency (if applicable)

By: _____

Title: _____

Date: _____

FIELD ORDER NO.: [Number of Field Order]

Owner:

Owner's Project No.:

Engineer:

Engineer's Project No.:

Contractor:

Contractor's Project No.:

Project:

Contract Name:

Date Issued:

Effective Date of Field Order:

Contractor is hereby directed to promptly perform the Work described in this Field Order, issued in accordance with Paragraph 11.04 of the General Conditions, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference:

Specification Section(s):

Drawing(s) / Details (s):

Description:

[Description of the change to the Work]

Attachments:

[List documents supporting change]

Issued by Engineer

By: _____

Title: _____

Date: _____

**SECTION 01 3000
ADMINISTRATIVE REQUIREMENTS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Preconstruction meeting.
- B. Progress meetings.
- C. Construction progress schedule.
- D. Submittals for review, information, and project closeout.
- E. Partial progress payments.
- F. Requests for Interpretation (RFI) procedures.
- G. Submittal procedures.

1.2 PROJECT COORDINATION

- A. Project Coordinator: Owner.
- B. Construction Coordinator: General Contractor
- C. Owner's Representative: Architect, Civil Engineer, Structural Engineer, Electrical Engineer, Mechanical Engineer, Geo-technical Engineer, or Landscape Architect, etc. (as appropriate to the scope of work).
- D. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for construction access, traffic, and parking facilities.
- E. During construction, coordinate use of site and facilities through the Project Coordinator.
- F. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
- G. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.
- H. Coordinate construction staking and layout of work under instructions of the Project Coordinator, Owner, or Owner's Representative(s).
- I. Make the following types of submittals to the Project Coordinator. The Project Coordinator is responsible for distribution of submittals to the Owner and the Owner's Representative(s).
 - 1. Requests for Information (RFIs).
 - 2. Requests for substitution (Approved Equal).
 - 3. Shop drawings, product data, and samples.
 - 4. Test and inspection reports.
 - 5. Design data.
 - 6. Manufacturer's instructions and field reports.
 - 7. Applications for payment and change order requests.
 - 8. Progress schedules.
 - 9. Coordination drawings.
 - 10. Correction Punch List and Final Correction Punch List for Substantial Completion.
 - 11. Closeout submittals.
 - a. Record Drawings.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PRECONSTRUCTION MEETING

- A. Project Coordinator will schedule a meeting after Notice of Award; if deemed necessary.
- B. Attendance Required:
 - 1. Owner.
 - 2. Owner's Representative(s) - if necessary
 - 3. Contractor.
 - a. Job Superintendent.
- C. Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
 - 5. Designation of personnel representing the parties to Contract.
 - 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, funding sources, proposal request, Change Orders, and Contract closeout procedures.
 - 7. Scheduling.
 - 8. Coordination.
 - a. Stored Materials
 - b. Utility Services
 - c. Site Visit
 - d. Laydown Area
 - 9. Scheduling activities of Testing Agency.
- D. Project Coordinator to record minutes and distribute electronic copies within two days after meeting to participants, with electronic copy to Project Coordinator, Owner, Owner's Representative(s), contractor, participants, and those affected by decisions made.

3.2 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work as deemed necessary by the Owner and/or Owner's Representative.
- B. Contractor will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
- C. Attendance Required:
 - 1. Contractor.
 - 2. Owner.
 - 3. Owner's Representative(s) - as necessary
 - 4. Contractor's superintendent.
 - 5. Major subcontractors.
- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems that impede, or will impede, planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of off-site fabrication and delivery schedules.
 - 7. Maintenance of progress schedule.
 - 8. Corrective measures to regain projected schedules.
 - 9. Planned progress during succeeding work period.
 - 10. Coordination of projected progress.
 - 11. Maintenance of quality and work standards.
 - 12. Effect of proposed changes on progress schedule and coordination.

13. Other business relating to work.
- E. Contractor shall record minutes and distribute copies within two days after meeting to participants, with electronic copy to Project Coordinator, Owner, Owner's Representatives, participants, and those affected by decisions made (Engineer, Utility Company, City, etc.).

3.3 CONSTRUCTION PROGRESS SCHEDULE

- A. 10 days prior to Pre-Construction Meeting, submit schedule defining planned operations for the first 30 days of Work, with a general outline for remainder of Work.
- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
 1. Include written certification that major contractors have reviewed and accepted proposed schedule.
- D. Within 10 days after joint review, submit complete schedule.
- E. Submit updated schedule every 30 days or monthly.

3.4 SUBMITTALS FOR REVIEW

- A. When the following are specified in individual sections, submit them for review:
 1. Product data.
 2. Product samples.
 3. Shop drawings.
- B. After Contractor has reviewed and approved, submit to Project Coordinator for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- C. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7000 - Execution and Closeout Requirements and Section 01 7800 - Closeout Submittals.

3.5 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:
 1. Design data.
 2. Certificates.
 3. Test reports.
 4. Inspection reports.
 5. Manufacturer's instructions.
 6. Manufacturer's field reports.
 7. Other types indicated.

3.6 PARTIAL PROGRESS PAYMENTS

- A. In accordance with 00 0700 - Standard General Conditions of the Construction Contract and 00 0800 - Supplementary Conditions to Standard General Conditions of the Construction Contract, otherwise as agreed upon prior to construction.

3.7 SUBMITTALS FOR PROJECT CLOSEOUT

- A. Submit Correction Punch List for Substantial Completion.
- B. Submit Final Correction Punch List for Substantial Completion.

- C. When the following are specified in individual sections, submit them at project closeout in conformance to requirements of Section 01 7000 - Execution and Closeout Requirements:
 - 1. Project record documents.
 - 2. Operation and maintenance data.
 - 3. Warranties.
 - 4. Bonds.
 - 5. Other types as indicated.

3.8 SUBMITTAL PROCEDURES

- A. General Requirements:
 - 1. Use a single transmittal for related items.
 - 2. When revised for resubmission, identify all changes made since previous submission.
- B. Shop Drawing Procedures:
 - 1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
 - 2. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.
- C. Transmit each submittal with a copy of approved submittal form to the Project Coordinator.
 - 1. Product data and shop drawings: transmit electronically in PDF format via email.
- D. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
- E. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
- F. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- G. Schedule submittals to expedite the Project, and coordinate submission of related items.
- H. For each submittal for review, allow 21 days excluding delivery time to and from the Contractor.
- I. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
- J. Provide space for Contractor and Owner's Representative(s) review.
- K. When revised for resubmission, identify all changes made since previous submission.
- L. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- M. Submittals not requested will not be recognized or processed.

PART 4 MEASUREMENT AND PAYMENT

- 4.1 ALL WORK DESCRIBED HEREIN IS INCIDENTAL TO OTHER RELATED ITEMS OF WORK. NO MEASUREMENT OR ADDITIONAL PAYMENT WILL BE CONSIDERED.
END OF SECTION**

**SECTION 01 4000
QUALITY REQUIREMENTS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittals.
- B. Quality assurance.
- C. References and standards.
- D. Inspection agencies and services.
- E. Control of installation.
- F. Tolerances.
- G. Defect Assessment.

1.2 RELATED REQUIREMENTS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements.
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements.

1.3 REFERENCE STANDARDS

- A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008 (Reapproved 2023).
- B. ASTM C1077 - Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation; 2017.
- C. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry; 2023.
- D. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2023.
- E. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2023.
- F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2021.

1.4 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Test Reports: After each test/inspection, promptly submit one electronic copy of report to Project Coordinator, Contractor, Owner, and Owner's Representative.
 - 1. Include:
 - a. Date issued.
 - b. Project title and number.
 - c. Name, address and telephone number of testing agency.
 - d. Name of inspector.
 - e. Date and time of sampling or inspection.
 - f. Identification of product and specifications section.
 - g. Location in the Project.
 - h. Type of test/inspection.
 - i. Date of test/inspection.
 - j. Results of test/inspection.
 - k. Compliance with Contract Documents.

- I. When requested by Project Coordinator or Owner's Representative(s), provide interpretation of results.
- 2. Test report submittals are for Project Coordinator's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.
- C. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Project Coordinator, then to Owner & Owner's Representative, in quantities specified for Product Data.
 - 1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
 - 2. Certificates may be recent or previous test results on material or product, but must be acceptable to Owner's Representative.
- D. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications:
 - 1. Prior to start of Work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.

1.6 TESTING AND INSPECTION AGENCIES AND SERVICES

- A. Contractor shall employ and pay for services of an independent testing agency to perform specified testing.
- B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- C. Contractor Employed Agency:
 - 1. Testing agency: Comply with requirements of ASTM E329, ASTM E543, ASTM C1021, ASTM C1077, ASTM C1093, and ASTM D3740.
 - 2. Laboratory: Authorized to operate in the State in which the Project is located.
 - 3. Laboratory Staff: Maintain a full time registered Engineer on staff to review services.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Project Coordinator, then Owner's Representative before proceeding.
- D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

- E. Have work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.2 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Project Coordinator, then Owner's Representative before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

3.3 TESTING AND INSPECTION

- A. Testing Agency Duties:
 - 1. Provide qualified personnel at site. Cooperate with Project Coordinator and Contractor in performance of services.
 - 2. Perform specified sampling and testing of products in accordance with specified standards.
 - 3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 4. Promptly notify Project Coordinator and Contractor of observed irregularities or non-conformance of Work or products.
 - 5. Perform additional tests and inspections required by Project Coordinator or Owner's Representative.
 - 6. Submit reports of all tests/inspections specified.
- B. Limits on Testing/Inspection Agency Authority:
 - 1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Agency may not approve or accept any portion of the Work.
 - 3. Agency may not assume any duties of Contractor.
 - 4. Agency has no authority to stop the Work.
- C. Contractor Responsibilities:
 - 1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
 - 2. Cooperate with laboratory personnel, and provide access to the Work .
 - 3. Provide incidental labor and facilities:
 - a. To provide access to Work to be tested/inspected.
 - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
 - c. To facilitate tests/inspections.
 - d. To provide storage and curing of test samples.
 - 4. Notify Project Coordinator and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
 - 5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
 - 6. Make arrangements with the independent testing laboratory employed by the Owner to obtain and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

- D. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Project Coordinator or Owner's Representative.
- E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.4 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not complying with specified requirements.
- B. If, in the opinion of Project Coordinator, it is not practical to remove and replace the Work, Owner will direct an appropriate remedy or adjust payment.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Materials Testing will not be measured.

4.2 PAYMENT

- A. Payment for Materials Testing shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. Partial payment shall be made in accordance with the percentage of work completed on the date of the partial payment estimate. Payment will not be made until 10-percent of the construction has been completed.

END OF SECTION

**SECTION 01 5500
VEHICULAR ACCESS AND PARKING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Construction Traffic Control
- B. Access roads.
- C. Parking.
- D. Haul routes.
- E. Maintenance.
- F. Removal, repair.

1.2 REFERENCES

- A. Manual of Uniform Traffic Control Devices, (MUTCD), latest edition.
- B. ND Department of Transportation (NDDOT) - Standard Specifications for Road and Bridge Construction, Section 704.

1.3 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Submit a Traffic Control Plan for Project Coordinator and governing authority review and approval at the Pre-Construction Conference. If no Pre-Construction Conference is held, Traffic Control Plan shall be submitted prior to site mobilization.

1.4 QUALIFICATIONS

- A. Provide a qualified traffic maintenance person with the following minimum qualifications:
 - 1. Be familiar with the requirements and importance of maintaining safe and smooth traffic flows.
 - 2. Have previous experience working with maintenance and protection of traffic.
 - 3. Be competent to supervise personnel in traffic maintenance operations.

1.5 RELATED REQUIREMENTS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements.
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Use only traffic control devices manufactured from materials that are durable, lightweight, rigid and visible, but do not create a hazard when struck.
- B. All traffic control devices used shall comply with applicable provisions of the MUTCD, latest edition.

2.2 ACCESSORIES

- A. Barricades: Type III, clear, well maintained and properly marked or lighted for nighttime use.
- B. Signs: Utilize signs with messages appropriate to provide adequate construction control. Signs and sign mountings shall conform to Section 704 of the NDDOT Standard Specifications for Road and Bridge Construction, current edition.

- C. Lights, delineators and reflectors: Red, yellow or white in color with no less than 12 square inches of reflective area per unit.
- D. Delineator Drums: Drums shall be approximately 36 inches in height and minimum of 18 inches in diameter at the top. They shall be constructed of durable plastic with horizontal, circumferential, orange and white reflectorized stripes. The reflectorized stripes shall be fabricated from Type III C, Type IV, or Wide Angle Prismatic flexible reflective sheeting. Delineator drums shall be weighted with sand placed at the bottom of the drum or constructed so that they cannot be blown over or displaced by wind or passing traffic, and do not create a hazard if accidentally struck.
- E. Traffic Cones: The cones shall be orange in color, shall be a minimum of 28 inches in height with a broadened base, and fabricated from materials that withstand impact. For nighttime use, cones shall have a minimum 6 inch wide white flexible reflectorized band placed a minimum of 3 inches, but not more than 4 inches, from the top. An additional 4 inch white reflectorized band shall be placed a minimum of 2 inches below the 6 inch band. The cones shall be weighted at the base to prevent overturning by wind. The reflectorized band shall be fabricated from Type III C, Type IV or Wide Angle Prismatic flexible reflective sheeting.

PART 3 EXECUTION

3.1 SCHEDULING AND COORDINATION

- A. Prior to commencing work, develop and agree to a detailed schedule between the Owner, Owner's Representative, Project Coordinator, Utility Companies, the Contractor and Subcontractor(s).
- B. Before any detour or temporary route is opened to traffic, all necessary Temporary Traffic Control (TTC) devices shall be in place.
- C. Schedule work to reopen a closed intersection in the most expedient manner. Any public road closures shall be approved by the governmental authority having jurisdiction.
- D. Provide access to all residential dwellings and businesses adjacent to this project.

3.2 PREPARATION

- A. Provide, erect and place all required traffic control devices in the appropriate locations prior to beginning any construction activity.

3.3 ACCESS ROADS

- A. Contractor shall utilize only those roads designated as access roads by the governing authority having jurisdiction for access to the project site.
- B. Tracked vehicles not allowed on paved areas.
- C. Contractor is responsible for preventing material tracking onto adjacent roadways and parking lot which may include installation of a vehicle tracking pad.
- D. Extend and relocate as work progress requires, provide detours as necessary for unimpeded traffic flow.
- E. Provide unimpeded access for emergency vehicles. Maintain 20 foot width driveways with turning space between and around combustible materials.
- F. Provide and maintain access to fire hydrants free of obstructions.

3.4 PARKING

- A. Arrange for temporary parking areas to accommodate use of construction personnel.
- B. Construction may utilize those portions of the existing facilities designated by the Owner for access and parking.

3.5 HAUL ROUTES

- A. Confine construction traffic to designated haul routes.
- B. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

3.6 MAINTENANCE

- A. Contractor shall provide a traffic control watchperson to monitor and inspect all traffic control devices daily. Watchperson shall provide daily logs of inspections to the Project Coordinator, Owner, and Owner's Representative.
- B. Maintain traffic and parking areas in a sound condition free of excavated material, construction equipment, products, mud, snow, and ice.
- C. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water and other deficiencies resulting from construction activities or Contractor's use to pre-construction conditions.
- D. When the Project Coordinator notifies the Contractor of the need for traffic control devices to be furnished, installed, relocated, maintained, removed, or otherwise revised, the Contractor must be on the project addressing the issue within one hour of the notification. Owner or Project Coordinator may apply a contract price reduction of \$1,000 per day if the issue is not addressed within one hour.

3.7 REMOVAL, REPAIR

- A. Repair existing facilities damaged by use, to original condition.
- B. Repair damage caused by installation.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Items as required within the plans and traffic control details.
- B. If traffic control is bid by the unit, EACH, on the bid form, EACH unit is defined as listed in "A" above within the plans and traffic control details.
- C. If traffic control is bid as a Lump Sum on the bid form, the amount bid must include the appropriate number of units as defined in "A" above within the plans and traffic control details to properly complete the project.

4.2 PAYMENT

- A. Include all costs associated with the requirements listed herein in the lump sum price bid for traffic control.
- B. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment, and materials.
- C. If no bid item is provided, payment will be incidental to other related items of work.

END OF SECTION

**SECTION 01 5713
EROSION AND SEDIMENT CONTROL**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Prevention of erosion due to construction activities.
- B. Prevention of sedimentation of waterways, open drainage ways, and storm and sanitary sewers due to construction activities.
- C. Restoration of areas eroded due to insufficient preventive measures.
- D. Permanent erosion control.
- E. Compensation of Owner for fines levied by authorities having jurisdiction due to non-compliance by Contractor.

1.2 RELATED REQUIREMENTS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements.
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements.
 - 1. Architect, Landscape Architect, Civil Engineer, Structural Engineer, Electrical Engineer, Mechanical Engineer, Geotechnical Engineer, etc., as applicable for the scope of work.
- C. Section 31 2200 - Grading: Temporary and permanent grade changes for erosion control.
- D. Section 32 1313 - Concrete Paving: Concrete for temporary and permanent erosion control structures indicated on drawings
- E. Section 32 9219 - Seeding: Permanent turf for erosion control and soil stabilization.

1.3 REFERENCE STANDARDS

- A. ASTM D792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement; 2013.
- B. ASTM D1388 - Standard Test Method for Stiffness of Fabrics; 2014.
- C. ASTM D4355/D4355M - Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc-Type Apparatus; 2021.
- D. ASTM D4533/D4533M - Standard Test Method for Trapezoid Tearing Strength of Geotextiles; 2015 (Reapproved 2023).
- E. ASTM D4595 - Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method; 2011.
- F. ASTM D4632/D4632M - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles; 2015a (Reapproved 2023).
- G. ASTM D4873/D4873M - Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples; 2017 (Reapproved 2021).
- H. ASTM D6460 - Standard Test Method for Determination of Rolled Erosion Control Product (RECP) Performance in Protecting Earthen Channels from Stormwater-Induced Erosion; 2012.
- I. ASTM D6524 - Standard Test Method for Measuring the Resiliency of Turf Reinforcement Mats (TRMs); 2000 (Reapproved 2011).
- J. ASTM D6525/D6525M - Standard Test Method for Measuring Nominal Thickness of Rolled Erosion Control Products; 2014.

- K. ASTM D6566 - Standard Test Method for Measuring Mass per Unit Area of Turf Reinforcement Mats; 2014.
- L. ASTM D6567 - Standard Test Method for Measuring the Light Penetration of a Turf Reinforcement Mat (TRM); 2014.
- M. ASTM D6575 - Standard Test Method for Determining Stiffness of Geosynthetics Used as Turf Reinforcement Mats (TRMs); 2014a.
- N. ASTM D6818 - Standard Test Method for Ultimate Tensile Properties of Rolled Erosion Control Products; 2014.
- O. ASTM D7322 - Standard Test Method for Determination of Rolled Erosion Control Product (RECP) Ability to Encourage Seed Germination and Plant Growth Under Bench-Scale Conditions; 2013.
- P. EPA (NPDES) - National Pollutant Discharge Elimination System (NPDES), Construction General Permit; Current Edition.
- Q. FHWA FLP-94-005 - Best Management Practices for Erosion and Sediment Control; 1995.

1.4 PERFORMANCE REQUIREMENTS

- A. Develop and follow a Storm Water Pollution Prevention Plan (SWPPP) and submit periodic inspection reports.
- B. Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained; furnish all documentation required to obtain applicable permits.
 - 1. Obtain and pay for permits:
 - a. Construction General Permit from the North Dakota Department of Environmental Quality.
 - b. Local permits as required by jurisdiction.
 - 2. Contractor shall be responsible for payment of any fines resulting from non-compliance with the applicable regulations and/or permit(s). If Owner pays for assessed fines due to Contractor failure or refusal to pay for assessed fines, Owner will withhold payment to Contractor an amount equivalent to the fines paid by Owner.
- C. Timing: Put preventive measures in place as soon as possible after disturbance of surface cover and before precipitation occurs.
- D. Storm Water Runoff: Control increased storm water runoff due to disturbance of surface cover due to construction activities for this project.
 - 1. Prevent runoff of sediment-laden water into storm and sanitary sewer systems, including open drainage channels, in excess of actual capacity or amount allowed by authorities having jurisdiction, whichever is less.
- E. Erosion On Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.
 - 1. Control movement of sediment and soil from temporary stockpiles of soil.
 - 2. Prevent development of ruts due to equipment and vehicular traffic.
 - 3. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.
- F. Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.
 - 1. Prevent windblown soil from leaving the project site.
 - 2. Prevent tracking of mud onto public roads outside site.
 - 3. Prevent mud and sediment from flowing onto sidewalks and pavements.

4. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.
- G. Sedimentation of Waterways On Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
 1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
 2. If sediment basins are used as temporary preventive measures, pump dry and remove deposited sediment after each storm.
- H. Sedimentation of Waterways Off Site: Prevent sedimentation of waterways off the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
 1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
- I. Open Water: Prevent standing water that could become stagnant.
- J. Maintenance: Maintain temporary preventive measures until permanent measures have been established.

1.5 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Storm Water Pollution Prevention Plan (SWPPP):
 1. Submit not less than 30 days prior to anticipated start of clearing, grading, or other work involving disturbance of ground surface cover.
 2. Obtain the approval of the Plan by authorities having jurisdiction.
 3. Obtain the approval of the Plan by Owner.
- C. Inspection Reports: Submit report of each inspection; identify each preventive measure, indicate condition, and specify maintenance or repair required and accomplished.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Grass Seed For Temporary Cover: Select a species appropriate to climate, planting season, and intended purpose. If same area will later be planted with permanent vegetation, do not use species known to be excessively competitive or prone to volunteer in subsequent seasons.
- B. Fiber Rolls (Straw Wattles):
 1. 12 inch, Flaxtech straw wattles, North American Green WS12, AEC Premier Straw Wattles, or approved equal.
 2. 12 inch has a minimum weight of 2 lbs/ft.
- C. Silt Fence:
 1. Where required by the local municipality having jurisdiction, where indicated on the plans, or where required at critical areas, silt fence shall be installed with a backing of steel woven wire fence. Woven wire fabric shall conform to ASTM A116 with a Class 1 zinc coating. Woven wire fabric shall be at least 32 inches wide with a maximum opening size of 6 inches x 6 inches.
 2. Fabric: Polypropylene geotextile conforming to ASTM D4439, resistant to common soil chemicals, mildew, and insects; non-biodegradable; with a minimum roll width of 36 inches.
 3. Manufacturers:

- a. Propex Geosynthetics; GEOTEX 2130:
www.geotextile.com/#sle.
 - b. Or Approved Equal.
- D. Silt Fence Posts: Minimum 5 feet long.
 - 1. Wood posts: Treated, with minimum dimensions of 1-1/2 inches by 1-1/2 inches for square posts, or 2 inch diameter for round posts.
 - 2. Steel T Posts: 0.95 lb/ft minimum with projections for fastening wire or fabric, and a metal plate welded near bottom.
- E. Inlet Protection: Polypropylene inlet filter bag with a minimum flow rate of 145 gallons per minute per square foot, and designed for a minimum silt and debris capacity of 2 cubic feet.
 - 1. Flexstorm Inlet Filter manufactured by Inlet & Pipe Protection, Inc. or approved equivalent.
- F. Erosion Control Blanket and Turf Reinforcement Mat
 - 1. Erosion Control Blanket and Turf Reinforcement Mat shall conform to Section 856 of the NDDOT Standard Specifications, current edition.
 - 2. All Erosion Control Blanket netting shall be jute or other biodegradable natural fiber. Photodegradable and polypropylene materials are not acceptable.
 - 3. Erosion Control Blanket type 2 shall be North American Green S150BN, or approved equivalent.
 - 4. Erosion Control Blanket type 4 shall be North American Green C125BN, SC150BN, or approved equivalent.
 - 5. Turf Reinforcement mat shall be North American Green P300, or approved equivalent.
- G. Concrete Slope Protection:
 - 1. Concrete: See Section 32 1313.
 - 2. Riprap: Angular shaped stone 6 inch minimum size, 12 inch maximum size; solid and nonfriable; free of deleterious material; not composed of sandstone, shale, or soft limestone, and not easily abraded or crushed.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

3.2 PREPARATION

- A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.

3.3 SCOPE OF PREVENTIVE MEASURES

- A. In all cases, if permanent erosion resistant measures have been installed, temporary preventive measures are not required.
- B. Construction Entrances: Traffic-bearing aggregate surface.
 - 1. Width: As required; 20 feet, minimum.
 - 2. Length: 50 feet, minimum.
 - 3. Provide at each construction entrance from public right-of-way.
 - 4. Where necessary to prevent tracking of mud onto right-of-way, provide wheel washing area out of direct traffic lane, with drain into sediment trap or basin.
- C. Linear Sediment Barriers: Made of silt fences or fiber rolls.
 - 1. Provide linear sediment barriers:
 - a. Along downhill perimeter edge of disturbed areas, including soil stockpiles.

- b. Along the toe of cut slopes and fill slopes.
 - 2. Space sediment barriers with the following maximum slope length upslope from barrier:
 - a. Slope of Less Than 2 Percent: 100 feet.
 - b. Slope Between 2 and 5 Percent: 75 feet.
 - c. Slope Between 5 and 10 Percent: 50 feet.
 - d. Slope Between 10 and 20 Percent: 25 feet.
 - e. Slope Over 20 Percent: 15 feet.
- D. Inlet Protection: Installed in locations delineated on the plans.
- E. Temporary Splash Pads: Stone aggregate over filter fabric; size to suit application; provide at downspout outlets and storm water outlets.
- F. Soil Stockpiles: Protect using perimeter silt fence.
- G. Temporary Seeding: Use in areas not being developed or planned to be developed for a period greater than 14 days.
- H. Permanent turf reinforcement mats or temporary erosion control: Install where required or where indicated on plans.
- I. Concrete slope protection: Install where required or where indicated on plans.

3.4 INSTALLATION

- A. Traffic-Bearing Aggregate Surface at Construction Entrances:
 - 1. Excavate minimum of 6 inches.
 - 2. Place geotextile fabric full width and length, with minimum 12 inch overlap at joints.
 - 3. Place and compact at least 6 inches of 2 to 4 inch diameter washed stone.
- B. Silt Fences:
 - 1. Store and handle fabric in accordance with ASTM D4873/D4873M.
 - 2. Silt fence shall either be installed in a 4 inch deep by 6 inch wide trench on the upslope side of the fence, or be machine sliced in with a 4 inch fabric embedment. If utilizing trench method, trench shall be backfilled and compacted. Top of fabric shall be at a minimum 32 inch nominal height.
 - 3. Steel posts shall be installed at a maximum 4 foot spacing, wood posts shall be installed at a maximum of 4 foot spacing. All posts shall be install with a minimum embedment of 24 inches.
 - 4. Do not splice fabric width; minimize splices in fabric length; splice at post only, overlapping at least 18 inches, with extra post.
 - 5. Wherever runoff will flow around end of barrier or over the top, provide temporary splash pad or other outlet protection; at such outlets in the run of the barrier, make barrier not more than 12 inches high with post spacing not more than 4 feet.
- C. Fiber Rolls:
 - 1. Install in fiber roll sections with roll ends overlapping 1 foot or greater when installed perpendicular to a slope.
 - 2. When placed parallel to a slope, turn downhill end of fiber roll uphill to create a "J" or hook shape. The short end of the "J" shall be 4' long (minimum). The uphill end of the fiber roll shall abut the subsequent uphill fiber roll section.
 - 3. Install so that bindings are not in contact with the ground.
 - 4. Embed at least 3 inches in the ground.
 - 5. Install anchor at least every 4 feet.
 - 6. Place soil excavated for trench against bales on the upslope side of the row, compacted.
- D. Erosion Control Blankets:

1. Install where indicated in plans or as needed, in accordance with manufacturer's recommendations.
- E. Concrete Slope Protection:
1. Remove vegetation and deleterious materials. Compact all loose material.
 2. Wet surfaces before placing concrete. Do not place concrete on soft subgrade or in standing water.
 3. Place and consolidate 6 inch concrete using methods that prevent segregation and sagging.
 4. Embed riprap in concrete with 6 inches to 12 inches of spacing between stones at alternating patterns. Provide a minimum clear space of 2 inches at the bottom of the concrete.
- F. Inlet Protection:
1. Install where indicated in plans or as needed, in accordance with manufacturer's recommendations.
- G. Temporary Seeding:
1. When hydraulic seeder is used, seedbed preparation is not required.
 2. When surface soil has been sealed by rainfall or consists of smooth undisturbed cut slopes, and conventional or manual seeding is to be used, prepare seedbed by scarifying sufficiently to allow seed to lodge and germinate.
 3. Apply seed uniformly; if using drill or cultipacker seeders place seed 1/2 to 1 inch deep.
 4. Irrigate as required to thoroughly wet soil to depth that will ensure germination, without causing runoff or erosion.
 5. Repeat irrigation as required until grass is established.
- H. Permanent Turf reinforcement mats:
1. Install where indicated in plans, in accordance with manufacturer's recommendations.

3.5 MAINTENANCE

- A. Inspect preventive measures weekly, within 24 hours after the end of any storm that produces 0.25 inches or more rainfall at the project site, and daily during prolonged rainfall.
- B. Repair deficiencies immediately.
- C. Silt Fences:
 1. Promptly replace fabric that deteriorates unless need for fence has passed.
 2. Remove silt deposits that exceed one-third of the height of the fence.
 3. Repair fences that are undercut by runoff or otherwise damaged, whether by runoff or other causes.
- D. Fiber Rolls:
 1. Promptly replace rolls that fall apart or otherwise deteriorate unless need has passed.
 2. Remove silt deposits that exceed one-half of the height of the rolls.
 3. Repair rows that are undercut by runoff or otherwise damaged, whether by runoff or other causes.
- E. Clean out temporary sediment control structures weekly and relocate soil on site.
- F. Place sediment in appropriate locations on site; do not remove from site.
- G. Maintain permanent turf reinforcement mats until vegetation has been established.
- H. When Project Coordinator, Owner, or Owner's Representative notifies the Contractor that the erosion control measures (BMP's) are not in compliance with

the SWPPP, the Contractor shall have 4 hours to address the situation. Project Coordinator or Owner may apply a contract price reduction of \$1,000 per day until the issue is resolved.

- I. Contractor is responsible for payment of any fines, fees, or other financial penalties imposed by any governmental agency for Contractor's failure to comply with the terms of the SWPPP.

3.6 CLEAN UP

- A. Remove temporary measures after permanent measures have been installed, unless permitted to remain by Owner.
- B. Clean out temporary sediment control structures that are to remain as permanent measures.
- C. Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.
- D. Comply with all SWPPP requirements relative to protection removal.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, Engineer will make measurement in accordance with each specific bid item. For lump sum (LS) bid items, measurements will not be made.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 01 6000
PRODUCT REQUIREMENTS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. General product requirements.
- B. Re-use of existing products.
- C. Transportation, handling, storage and protection.
- D. Product option requirements.
- E. Substitution limitations.

1.2 RELATED SECTIONS

- A. Instructions to Bidders: Product options and substitution procedures.
- B. Section 01 3000 - Administrative Requirements: Submittal procedures.
- C. Section 01 4000 - Quality Requirements: Product quality monitoring.
- D. Project Coordinator: Described in Section 01 3000 - Administrative Requirements.
- E. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements.

1.3 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal requirements and procedures.
- B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.1 EXISTING PRODUCTS

- A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by Contract Documents.
- B. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

2.2 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by Contract Documents.

2.3 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article.

PART 3 EXECUTION

3.1 SUBSTITUTION LIMITATIONS

- A. If provided, Section 00 0200 - Instructions to Bidders specifies time restrictions for submitting requests for Substitutions during the bidding period and the documents required. Any products approved during the bidding period will be identified by Addendum in writing.
- B. Substitutions may be considered when a Product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- D. A request for substitution constitutes a representation that the Contractor:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 - 2. Agrees to provide the same warranty for the substitution as for the specified product.
 - 3. Agrees to coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
- E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- F. Substitution Submittal Procedure:
 - 1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
 - 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
 - 3. The Project Coordinator will notify Contractor, or issue an addendum of decision to accept or reject request.

3.2 TRANSPORTATION AND HANDLING

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

3.3 STORAGE AND PROTECTION

- A. Store and protect products in accordance with manufacturers' instructions.
- B. Store with seals and labels intact and legible.

- C. Store sensitive and hazardous products in weather tight, climate controlled enclosures in an environment favorable to product.
- D. For exterior storage of fabricated products, place on sloped supports above ground.
- E. Provide off-site storage and protection when site does not permit on-site storage or protection.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- H. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- I. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- J. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

PART 4 MEASUREMENT AND PAYMENT

**4.1 ALL WORK DESCRIBED HEREIN IS INCIDENTAL TO OTHER RELATED ITEMS OF WORK. NO MEASUREMENT OR ADDITIONAL PAYMENT WILL BE CONSIDERED.
END OF SECTION**

**SECTION 01 7113
MOBILIZATION**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Contractor shall be responsible for all preparatory work and operations required prior to beginning work on the project and demobilization.
 - 1. Mobilization
 - 2. Demobilization
 - 3. Assembly and disassembly of equipment and plants
 - 4. Project incidentals

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 GENERAL

- A. Mobilization shall include, but not limited to, the following:
 - 1. Movement of personnel, tools, equipment, materials, supplies, and incidentals to the project site and all preparatory work.
 - 2. Establishment of all necessary facilities, including acquisition of easements for the Contractor's convenience.
 - 3. Obtaining permits necessary for the execution of the work.
 - 4. Upon completion of the work, the Contractor shall remove tools, equipment, and unused materials, supplies, debris, and waste from the project site and restore all disturbed areas outside the project area to their pre-construction condition.
- B. Refer to Section 02 4110 for disposal of waste materials.

1.4 SUBMITTALS

- A. Refer to Section 01 3000 - Administrative Requirements, for submittal procedures and requirements.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, Owner's Representative will make measurement in accordance with each specific bid item. For lump sum (LS) bid items, measurements will not be made.

4.2 PAYMENT

- A. Payment shall be made in accordance with the percentage of work completed to date of the partial payment estimate. Payment will not be made until 10-percent of the construction has been completed. The final 10-percent of the amount bid for mobilization will be withheld until all the final clean-up is complete.

END OF SECTION

**SECTION 01 7123.10
CONSTRUCTION STAKING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Construction staking services by Contractor

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 DESCRIPTION OF SERVICES

- A. Specific services listed in this section are in addition to, and do not supersede, general Execution and Closeout Requirements.
- B. Sole responsibility for establishing all locations, dimensions and levels of items of work.
- C. Sole responsibility for provision of all materials required to establish and maintain benchmarks and control points, including batter boards, grade stakes, structure elevation stakes, and other items.
- D. Provision of facilities and assistance necessary for Owner or Owner's Representative to check lines and grade points placed by Contractor.
- E. Preparation and maintenance of professional-quality, accurate, well organized, legible notes of all measurements and calculations made while surveying and laying out the work.

1.4 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Informational Submittals:
 - 1. When requested by Owner, Project Coordinator, or Owner's Representative:
 - a. Photo copies of survey and/or field notes
 - b. Survey coordinates of points staked by Contractor
 - c. Record Survey of field changes

1.5 QUALITY ASSURANCE

- A. Land Surveyor's Qualifications: If requested by Owner or Owner's Representative, submit evidence that the party/parties responsible for construction surveying are under the supervision of a Professional Land Surveyor licensed in the State in which the Project is located.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. Notify Owner or Owner's Representative of any discrepancies immediately in writing before proceeding to lay out the work. Locate and protect existing benchmarks and base line. Preserve permanent reference points during construction.

- B. Existing Utilities and Equipment: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify existing conditions.

3.2 CONSTRUCTION SURVEYING

- A. Perform surveying as applicable to specific items necessary for proper execution of work.
- B. Perform Record survey for all field changes.
- C. Record Log: Maintain a log of layout control work. Record any deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used.
- D. Use by the Owner, Project Coordinator, or Owner's Representative: The Owner, Project Coordinator, or Owner's Representative may at any time use line and grade points and markers established by the Contractor. The Contractor's surveys are a part of the work and may be checked by the Owner, Project Coordinator, or Owner's Representative at any time.

3.3 RECORDS

- A. Maintain at the Site a complete and accurate log of control and survey work as it progresses.
 - 1. Organize and record survey data in accordance with recognized professional surveying standards, Laws and Regulations, and prevailing standards of practice in the State in which the Project is located. Contractor is solely responsible for completeness and accuracy of survey work, and completeness and accuracy of survey records, including field books.

3.4 CLOSEOUT ACTIVITIES

- A. See Section 01 7000 - Execution and Closeout Requirements, for closeout procedures.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Construction Staking will not be measured.

4.2 PAYMENT

- A. Payment for Construction Staking shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. Partial payment shall be made in accordance with the percentage of staking work completed on the date of the partial payment estimate as determined by Owner's

END OF SECTION

**SECTION 01 7800
CLOSEOUT SUBMITTALS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Project record documents.
- B. Warranties and bonds.

1.2 RELATED REQUIREMENTS

- A. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- B. Individual Product Sections: Warranties required for specific products or Work.

1.3 SUBMITTALS

- A. Project Record Documents: Submit documents to Project Coordinator with claim for final Application for Payment.
- B. Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
 - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 2. Field changes of dimension and detail.
 - 3. Details not on original Contract drawings.

4. If As-built or Record drawings are prepared using Engineer's certified plan sheets, Engineer's stamp and signature shall be masked or covered prior to submitting to Project Coordinator.

3.2 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.
- E. Include photocopies of each in operation and maintenance manuals, indexed separately on Table of Contents.
- F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.

PART 4 MEASUREMENT AND PAYMENT

- 4.1 **ALL WORK DESCRIBED HEREIN IS INCIDENTAL TO OTHER RELATED ITEMS OF WORK. NO MEASUREMENT OR ADDITIONAL PAYMENT WILL BE CONSIDERED.
END OF SECTION**

**SECTION 02 4110
REMOVALS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Removal and disposal of concrete, asphalt and other pavement items.
- B. Removal of sanitary sewer and storm sewer manholes, inlets, and pipe.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 REFERENCE STANDARDS

- A. 29 CFR 1926 - Safety and Health Regulations for Construction; Current Edition.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

1.4 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Fill Material: As specified in Section 31 2323 - Fill.

PART 3 EXECUTION

3.1 SCOPE

- A. Remove paving and curbs as required to accomplish new work.
- B. Remove manholes and manhole covers, curb inlets and catch basins.
- C. Remove other items indicated, for salvage, relocation, and recycling.
- D. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as specified in Section 31 2323 - Fill.

3.2 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Use of explosives is not permitted.
 - 3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 4. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
 - 5. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 - 6. Do not close or obstruct roadways or sidewalks without permit.
 - 7. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.

- 8. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- B. Do not begin removal until receipt of notification to proceed from Owner.
- C. Protect existing structures and other elements that are not to be removed.
 - 1. Provide bracing and shoring.
 - 2. Prevent movement or settlement of adjacent structures.
 - 3. Stop work immediately if adjacent structures appear to be in danger.
- D. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.3 EXISTING UTILITIES

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
- E. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- F. Remove piping, manholes, and inlets designated for removal.

3.4 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.
- D. Dispose of materials at locations approved by state and local regulations.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 31 1000
SITE CLEARING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Clearing and protection of vegetation.
- B. Removal of surface debris.
- C. Removal of root systems.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 SITE CLEARING

- A. Comply with other requirements specified in Section 02 4110 - Removals.
- B. Lay out the work as shown on plans.
- C. Minimize production of dust due to clearing operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

3.2 EXISTING UTILITIES AND BUILT ELEMENTS

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Protect existing structures and other elements that are not to be removed.

3.3 VEGETATION

- A. Scope: Remove trees, shrubs, brush, and stumps in areas to be covered by building structure, paving, playing fields, lawns, and planting beds.
- B. Do not begin clearing until vegetation to be relocated has been removed.
- C. Do not remove or damage vegetation beyond the limits indicated on drawings.
- D. Install substantial, highly visible fences at least 3 feet high to prevent inadvertent damage to vegetation to remain:
 - 1. At vegetation removal limits.
 - 2. Around trees to remain within vegetation removal limits; locate no closer to tree than at the drip line.
 - 3. Around other vegetation to remain within vegetation removal limits.
- E. Vegetation Removed: Do not burn, bury, landfill, or leave on site, except as indicated.
 - 1. Chip, grind, crush, or shred vegetation for mulching, composting, or other purposes; preference should be given to on-site uses.
 - 2. Trees: Sell if marketable; if not, treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.
 - 3. Existing Stumps: Treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.

4. Sod: Re-use on site if possible; otherwise sell if marketable, and if not, treat as specified for other vegetation removed.
 5. Fill holes left by removal of stumps and roots, using suitable fill material, with top surface neat in appearance and smooth enough not to constitute a hazard to pedestrians.
- F. Dead Wood: Remove all dead trees (standing or down), limbs, and dry brush on entire site; treat as specified for vegetation removed.
- G. Restoration: If vegetation outside removal limits or within specified protective fences is damaged or destroyed due to subsequent construction operations, replace at no cost to Owner.

3.4 WARRANTY

- A. Existing plant life to remain within 10 feet of the area being cleared shall be replaced by the Contractor if death or damage resulting from contact during construction occurs within 1-year after final acceptance by Owner. Warranty shall include all costs for materials and installation.

3.5 DEBRIS

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 31 2200
GRADING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Removal and storage of topsoil.
- B. Rough Grading procedures.
- C. Preparation and placement of topsoil for finish landscaping.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 RELATED REQUIREMENTS

- A. Section 01 5713 - Temporary Erosion and Sediment Control: Soil stockpile protection.
- B. Section 31 1000 - Site Clearing.
- C. Section 31 2316 - Excavation.
- D. Section 31 2316.13 - Trenching: Trenching and backfilling for utilities.
- E. Section 31 2323 - Fill: Filling and compaction.
- F. Section 32 9219 - Seeding: Finish ground cover.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Topsoil: Composed of loose, friable, loamy topsoil that is free of excess acid and alkali. Assure topsoil does not contain objectionable amounts of sod, tall grass, noxious weeds, roots, hard lumps, gravel, stones larger than described below, subsoil or other undesirable material which will prevent the formation of a suitable seeding, sodding or planting bed. Topsoil shall, prior to being stripped, have demonstrated ability to grow plants by the occurrence upon it of healthy crops, grass or other plant growth that is of good quality and that it is reasonably drained.
 - 1. Topsoil may be excavated on-site and designated for re-use or imported.
 - 2. Stones larger than 1 inch shall be removed from all areas to be finish graded.
 - 3. Acidity range (pH) of 5.5 to 7.5.
 - 4. Containing a minimum of 4 percent and a maximum of 20 percent inorganic matter.
 - 5. Provide soil test results of topsoil to be used on the project. Soil test shall provide information on nitrogen, phosphorus, potassium, pH, soluble salt, organic matter, and iron (Typical Lawn and Garden Package + Iron).
 - a. Soil Testing Labs
 - 1) **B&C AG Consultants**, 315 South 26th St., Billings, MT 59101, Ph. 406-259-5779, website: <http://bncag.com>.
 - 2) **DAKOTA Analytical, Inc.**, 833 Gateway Dr. NE, East Grand Forks, MN 56721, Ph. 701-735-4489, website: dakotalab.com
 - 3) **Energy Laboratories, Inc.**, PO Box 30916, Billings, MT 59107, Ph. 800-735-4489, 406-252-6325, website: eneregylab.com

- 4) **Maxim Technologies, Inc.**, 600 S. 25th St., PO Box 30615, Billings, MT 59107, Ph. 406-248-9161.
- 5) **NDSU Soil Testing Lab**, 1360 Bolley Drive, Fargo, ND 58102, PH. 701-231-8942.
- 6) Or otherwise Approved.
- b. Test result shall include a recommendation for soil amendments and fertilizers that may be needed to provide soil suitable for growing landscape trees, shrubs, and perennials.
- B. Other Fill Materials: See Section 31 2323 - Fill.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.
- B. Verify the absence of standing or ponding water.
- C. Prior to placing topsoil:
 - 1. Verify backfilling compaction is complete.
 - 2. Verify substrate base has been contoured and compacted.

3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.
- C. Locate, identify, and protect from damage above- and below-grade utilities to remain.
- D. Notify utility company to remove and relocate utilities.
- E. Provide temporary means and methods to remove all standing or ponding water from areas prior to grading.
- F. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.
- G. Protect trees to remain by providing substantial fencing around entire tree at the outer tips of its branches; no grading is to be performed inside this line.
- H. Protect plants, lawns, rock outcroppings, and other features to remain as a portion of final landscaping.
- I. Remove all existing asphalt, concrete, and other demolition items from the construction area and properly dispose at an approved disposal area. Aggregate surfacing removed shall be stockpiled for later reuse.

3.3 ROUGH GRADING

- A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.
- B. Do not remove topsoil when wet.
- C. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.
- D. Perform rough grading to obtain elevations shown on plans or as directed by the Owner's Representative.
- E. Areas shall be graded to provide positive drainage.
- F. Do not remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.
- G. When excavating through roots, perform work by hand and cut roots with sharp axe.

- H. See Section 31 2323 for filling procedures.
- I. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.
- J. The subgrade shall be maintained until permanent improvements are installed. Any damage due to inclement weather, contractor operations, or any other contractor/utility operations shall be repaired by the contractor at no expense to the contract.

3.4 SOIL REMOVAL

- A. Stockpile topsoil to be re-used on site; remove remainder from site.
- B. Stockpile subsoil to be re-used on site; remove remainder from site.

3.5 FINISH GRADING - SUBSTRATE PREPARATION AND TOPSOIL PLACEMENT

- A. Before Finish Grading:
 - 1. Verify building and trench backfilling have been compacted and tested.
 - 2. Verify subgrade has been contoured and compacted and tested.
- B. Remove debris, roots, and branches. Remove stones as specified in Part 2 of this Section. Remove soil contaminated with petroleum products.
- C. Where topsoil is to be placed, scarify surface to depth of 3 inches.
- D. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.
- E. Place topsoil in areas indicated to depth indicated on plans. Minimum topsoil replacement depth is 4 inches in grass areas and 18 inches in planting bed areas.
- F. Place topsoil where required to level finish grade.
- G. Place topsoil during dry weather.
- H. Remove roots, weeds, rocks, and foreign material while spreading.
- I. Near plants spread topsoil manually to prevent damage.
- J. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.
- K. Lightly compact placed topsoil to approximately 80% maximum dry density.
- L. Maintain stability of topsoil during inclement weather. Replace topsoil in areas where surface water has eroded thickness below specifications.

3.6 TOLERANCES

- A. Refer to Section 31 2323 - Fill.

3.7 REPAIR AND RESTORATION

- A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.
- B. Trees to Remain: If damaged due to this work, trim broken branches and repair bark wounds; if root damage has occurred, obtain instructions from Owner's Representative as to remedy.
- C. Other Existing Vegetation to Remain: If damaged due to this work, replace with vegetation of equivalent species and size.

3.8 FIELD QUALITY CONTROL

- A. See Section 31 2323 for compaction density testing.

3.9 CLEANING

- A. Remove unused stockpiled topsoil and subsoil. Grade stockpile area to prevent standing water.
- B. Leave site clean and raked, ready to receive permanent improvements.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 31 2316.13
TRENCHING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Trenching for utilities from 5' outside of buildings to utility main connections.
- B. Trenching for utility mains and service lines.
- C. Backfill of utility trenches.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 RELATED REQUIREMENTS

- A. Section 31 2200 - Grading: Rough grading procedures.
- B. Section 31 2200 - Grading: Topsoil removal and replacement.
- C. Section 31 2316 - Excavation: Building and foundation excavating.
- D. Section 31 2323 - Fill: Material classifications for utilities.
- E. Section 33 4211 - Stormwater Gravity Piping: Trench cuts.

1.4 DEFINITIONS

- A. Finish Grade and Utility Invert Elevations: Indicated on drawings.

1.5 REFERENCE STANDARDS

- A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses; 2017 (Reapproved 2021).
- B. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop; 2022, with Errata .
- C. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2019.
- D. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2012 (Reapproved 2021).
- E. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method; 2015, with Editorial Revision (2016).
- F. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)); 2012 (Reapproved 2021).
- G. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2015.
- H. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2017, with Editorial Revision (2020).
- I. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.
- J. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2017, with Editorial Revision (2018).

- K. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth); 2023.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.
- B. When fill materials need to be stored on site, locate stockpiles where indicated.
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. See Section 31 2323 for fill materials.

2.2 SOURCE QUALITY CONTROL

- A. Where fill materials are specified by reference to a specific standard, testing of samples for compliance shall be provided before delivery to site.
- B. If tests indicate materials do not meet specified requirements, change material and retest.
- C. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the work are as indicated.

3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.
- C. Locate, identify, and protect from damage above- and below-grade utilities to remain
- D. Notify utility company to remove and relocate utilities.
- E. Protect site features to remain including, but not limited to, bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- F. Protect plants, lawns, and other features to remain.
- G. Grade top perimeter of trenching area to prevent surface water from draining into trench. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by the Owner's Representative.
- H. Maintain and keep in good working order, all warning lights, barriers, signs and other traffic control devices as required for the safety of the public and maintenance of traffic.

3.3 TRENCHING

- A. Notify Project Coordinator or Owner's Representative of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- B. Remove all topsoil from area to be trenched.
- C. Do not interfere with 45 degree bearing splay of foundations.
- D. Cut trenches sufficiently wide to enable safe installation and allow for safe construction. Notify Project Coordinator or Owner's Representative if plan details

cannot be met or maintained. All excavation and trenching shall conform to current OSHA requirements and standards.

- E. Hand trim excavation for bell and spigot pipe joints and other appurtenant items. Remove or compact all loose soil under pipe to form firm bedding.
- F. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.
- G. Remove excavated material that is unsuitable for re-use from site.
- H. Stockpile excavated material to be re-used in area designated on site.
- I. Remove excess excavated material from site.
- J. Provide temporary means and methods, as required, to remove all water from trenching until directed by the Owner's Representative. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.
- K. Determine the prevailing groundwater level prior to trenching. If the proposed trench extends less than 1 foot (305 mm) into the prevailing groundwater, control groundwater intrusion with perimeter drains routed to sump pumps, or as directed by the Owner's Representative.

3.4 PREPARATION FOR UTILITY PLACEMENT

- A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill or, when directed by Project Coordinator or Owner's Representative, crushed rock.
- B. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
- C. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.
- D. Utility installation shall conform to the specific requirements of the pipe manufacturer for the type of pipe used, with respect to pipe bedding, backfill, and fill material.

3.5 BACKFILLING

- A. Backfill to contours and elevations indicated using unfrozen materials.
- B. Employ a placement method that does not disturb or damage other work.
- C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- D. Maintain optimum moisture content of fill materials to attain required compaction density. See Section 31 2323.
- E. Pipe Bedding - Fill Type 4a: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.
- F. General Fill - Fill Type 1: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth where heavy, self-propelled compaction equipment will be utilized, or 6 inches compacted depth where hand-guided equipment will be utilized.
- G. Slope grade away from buildings a minimum 12 inches in first 10 ft, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.
- H. Correct areas that are over-excavated.
- I. Relative Compaction Density shall be per Section 31 2323.
- J. Reshape and re-compact fills subjected to vehicular traffic.

3.6 BEDDING AND FILL AT SPECIFIC LOCATIONS

- A. Utility Piping:
 - 1. Bedding: Use Fill Type 4a.
 - 2. Cover with General Fill - Type 1.
 - 3. Compact in accordance with Section 31 2323 - Fill.

3.7 TOLERANCES

- A. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.
- B. Top Surface of Backfilling Under Paved Areas: Plus or minus 1/2 inch from required elevations.

3.8 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.
- B. Perform compaction density testing on compacted fill in accordance with ASTM D1556, ASTM D2167, or ASTM D6938.
- C. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D698 ("standard Proctor"). See Section 31 2323 for compaction requirements.
- D. If tests indicate work does not meet specified requirements, remove work, replace and retest. Contractor shall be responsible for all costs associated with additional testing required as a result of failed tests and/or substandard work.
- E. Frequency of Tests: See Section 31 2323.

3.9 CLEANING

- A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.
- B. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 31 2316
EXCAVATION**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Excavating for exterior slabs-on-grade and paving.
- B. Excavating for footings, interior slabs-on-grade, and site structures.
- C. Excavation and disposal of rocks.

1.2 DEFINITIONS

- A. Project Coordinator:
 - 1. Described in Section 01 3000 - Administrative Requirements.
- B. Owner's Representatives:
 - 1. Described in Section 01 3000 - Administrative Requirements.

1.3 RELATED REQUIREMENTS

- A. Section 01 5713 - Erosion and Sediment Control: Slope protection and erosion control.
- B. Section 31 2200 - Grading: Rough Grading Procedures.
- C. Section 31 2200 - Grading: Topsoil Removal and Replacement.
- D. Section 31 2316.13 - Trenching: Excavating for utility trenches outside the building to utility main connections.
- E. Section 31 2323 - Fill: Fill materials, backfilling, and compacting.

1.4 REFERENCE STANDARDS

- A. 29 CFR 1926 - Safety and Health Regulations for Construction; Current Edition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the work are as indicated.

3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.
- C. Locate, identify, and protect from damage above- and below-grade utilities to remain.
- D. Notify utility company to remove and relocate utilities.
- E. Protect site features to remain including, but not limited to, bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- F. Protect plants, lawns, and other features to remain.
- G. Grade top perimeter of excavation to prevent surface water from draining into excavation. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by Project Coordinator.
- H. Maintain and keep in good working order, all warning lights, barriers, signs and other traffic control devices as required for the safety of the public and maintenance of traffic.

3.3 EXCAVATING

- A. Underpin adjacent structures that could be damaged by excavating work.
- B. Excavate to accommodate new structures and construction operations.
- C. Notify Project Coordinator or Owner's Representative of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- D. Cut excavations sufficiently wide to enable safe installation and allow for safe construction. Notify Project Coordinator or Owner's Representative if plan details cannot be met or maintained. All excavation shall conform to current OSHA requirements and standards.
- E. Do not interfere with 45 degree bearing splay of foundations.
- F. Correct areas that are over-excavated and load-bearing surfaces that are disturbed; see Section 31 2323.
- G. Provide temporary means and methods, as required, to remove all water from excavations until directed by Project Coordinator or Owner's Representative. Remove and replace soils deemed suitable by classification and which are excessively moist due to lack of dewatering or surface water control.
- H. Determine the prevailing groundwater level prior to excavation. If the proposed excavation extends less than 1 foot (305 mm) into the prevailing groundwater, control groundwater intrusion with perimeter drains routed to sump pumps, or as directed by the Project Coordinator or Owner's Representative. If the proposed excavation extends more than 1 foot (305 mm) into the groundwater, control groundwater intrusion with a comprehensive dewatering procedures, or as directed by the Geotechnical Engineer.
- I. Remove excavated material that is unsuitable for re-use from site.
- J. Stockpile excavated material to be re-used in area designated on site in accordance with Section 31 2200.
- K. Remove excess excavated material from site.
- L. Rocks not reused onsite shall be removed from the property at the Contractor's expense.

3.4 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.
- B. Provide for visual inspection of load-bearing excavated surfaces by Project Coordinator before placement of foundations.

3.5 PROTECTION

- A. Divert surface flow from rains or water discharges from the excavation.
- B. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.
- C. Protect open excavations from rainfall, runoff, freezing groundwater, or excessive drying so as to maintain foundation subgrade in satisfactory, undisturbed condition.
- D. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.
- E. Keep excavations free of standing water and completely free of water during concrete placement.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Unless otherwise stated in the plans, excavated rock shall become property of the Contractor and be hauled offsite, incidental to Common Excavation.
- B. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- C. For lump sum (LS) bid items, measurements will not be made.
- D. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 31 2323
FILL**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Filling, backfilling, and compacting for footings, interior slabs-on-grade, and site structures.
- B. Backfilling and compacting for utilities.
- C. Subgrade preparation and base construction for paving.

1.2 DEFINITIONS

- A. Project Coordinator:
 - 1. Described in Section 01 3000 - Administrative Requirements.
- B. Owner's Representative(s):
 - 1. Described in Section 01 3000 - Administrative Requirements.

1.3 RELATED REQUIREMENTS

- A. Section 01 5713 - Erosion and Sediment Control: Slope protection and erosion control.
- B. Section 31 2200 - Grading: Topsoil removal and replacement.
- C. Section 31 2200 - Grading: Rough grading procedures.
- D. Section 31 2316 - Excavation: Removal and handling of soil to be re-used.
- E. Section 31 2316.13 - Trenching: Excavating for utility trenches outside the building to utility main connections.
- F. Section 32 1123 - Aggregate Base Courses: Base course installation beneath pavements.
- G. Section 33 4211-Stormwater Graviy Piping: Pipe Cover Material

1.4 REFERENCE STANDARDS

- A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses; 2017 (Reapproved 2021).
- B. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop; 2022, with Errata .
- C. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2019.
- D. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2012 (Reapproved 2021).
- E. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method; 2015, with Editorial Revision (2016).
- F. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)); 2012 (Reapproved 2021).
- G. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2015.
- H. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2017, with Editorial Revision (2020).

- I. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2017, with Editorial Revision (2018).
- J. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth); 2015.
- K. ASTM D6817/D6817M - Standard Specification for Rigid Cellular Polystyrene Geofoam; 2017 (Reapproved 2025).
- L. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth); 2023.
- M. ASTM D7557/D7557M - Standard Practice for Sampling of Expanded Polystyrene Geofoam Specimens; 2009 (Reapproved 2021).
- N. North Dakota Department of Transportation (NDDOT) - Standard Specifications for Road and Bridge Construction; Current Edition.

1.5 QUALITY ASSURANCE

- A. Designer Qualifications: Perform design of structural fill under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.
- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than ten years of documented experience.
- C. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.
- D. Copies of Documents at Project Site: Maintain at the project site a copy of each referenced document that prescribes execution requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.
- B. When fill materials need to be stored on site, locate stockpiles where designated.
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Fill materials shall conform to the requirements herein unless otherwise approved by the Geotechnical Engineer.
- B. General Fill- Fill Type 1A: Material excavated on site and approved for use as backfill by Project Coordinator or Owner's Representative.
 - 1. Sandy, graded and compactible material.
 - 2. Free of lumps larger than 3 inches, rocks larger than 2 inches, organics and debris.
 - 3. Fill material that is fat clay in nature shall not have a plastic limit less than 15%.
- C. Imported Fill - Fill Type 1B: Material imported from a location offsite and approved for use as backfill by Project Coordinator or Owner's representative.
 - 1. Matches the gradation and soil type of the existing on site soil or has the following qualities:
 - a. Sandy, graded and compactible material.
 - b. Free of lumps larger than 3 inches, rocks larger than 2 inches, organics and debris.

- c. Imported fill material that is fat clay in nature shall not have a plastic limit less than 15%.

D. Structural Fill - Fill Type 2: To be utilized as foundation fill or as indicated on the plans:

- 1. Non-frost susceptible Sand per the following gradation:

Sieve Size	Percent Passing
3/8"	100%
No. 4	95% - 100%
No. 16	45% - 80%
No. 50	10% - 30%
No. 100	0% - 10%
No. 200	0% - 5%

E. Aggregate Base - Fill Type 3: To be used as aggregate base under pavements per Section 32 1123.

- 1. Conforming to State of North Dakota Department of Transportation standard for Class 5 Aggregate Base.
- 2. Blended Base Course:
 - a. May contain up to 50% recycled bituminous and/or recycled concrete. Must contain 50% minimum Class 5 Aggregate.

- b. Gradation:

Sieve Size	Percent Passing
1"	100%
3/4"	90% - 100%
No. 4	35% -85%
No. 30	16% - 50%
No. 200	0% - 12%

F. Pipe Bedding - Fill Type 4A

- 1. Utilize existing excavated, sandy soil that does not contain rocks or hard chunks larger than 1/2-inch, if available. If material is not available on site, provide sand from an outside source meeting the following gradation:

Sieve Size	Percent Passing
1/2"	100%
No. 4	60% - 85%
No. 200	0% -10%

- 2. Pipe bedding shall conform to and be installed per pipe manufacturers requirements.

G. Crushed Rock - Fill Type 4B

- 1. Utilize crushed rock under manholes and inlets or where the bottom of trenches or excavations is wet or otherwise unsuitable and cannot support loads or provide adequate pipe support, as determined by the Owner's Representative. Crushed Rock shall conform to the following gradation:

Sieve Size	Percent Passing
1-1/2"	100%

1"	95% - 100%
1/2"	25% - 60%
No. 4	0% - 10%
Fractured Faces	85%

- H. Topsoil: See Section 31 2200.
- I. Clay materials excavated on site and not defined above shall be utilized as approved by the Owner's Representative and in conformance with the recommendations provided by the Geotechnical Engineer.
- J. Aggregate Surface Course - Fill Type 8
 - 1. For installation in private roadways and parking lots.
 - a. Conforming to State of North Dakota Department of Transportation standard for Class 5 Aggregate Base.

2.2 SOURCE QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for general requirements for testing and analysis of soil material.
- B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.
- C. If tests indicate materials do not meet specified requirements, change material and retest.
- D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the Work are as indicated.
- B. Identify required lines, levels, contours, and datum.
- C. Verify areas to be filled are not compromised with surface or ground water.

3.2 SUBGRADE PREPARATION

- A. Scarify subgrade to a depth of 12 inches.
- B. Recompact with moisture and density control in accordance with Part 3.3 of this Section.
- C. The subgrade shall be recompacted by approved compaction equipment. The surface after compaction shall be true to line, grade, and cross section.
 - 1. Approved compaction equipment shall include sheepsfoot rollers, pneumatic packers, mechanical packers, mechanical rammers, vibratory equipment, trucks, tractors, scrapers, motor graders, and all other types of equipment used in excavating, transporting, and placing the subgrade.
 - 2. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- D. Proof roll subgrade to identify soft or yielding areas.
 - 1. Subgrade shall be proof-rolled by the Contractor using suitable equipment (such as a fully loaded water truck or fully loaded dump truck or a tractor-trailer combination), approved for this purpose by the Owner's Representative, before placing and/or spreading operations.
 - 2. Any ruts, soft yielding areas, or areas where subgrade cannot be adequately compacted shall be corrected at the Contractor's expense.

3. Cut out unsatisfactory subgrade areas. Backfill with general fill or other material as directed by Owner's Representative.
 4. Recompress corrected subgrade areas to moisture control and density equal to or greater than requirements for subsequent fill material and in accordance with Part 3.3 of this Section.
- E. Until ready to place aggregate base course, protect prepared subgrade from unnecessary vehicle traffic, moisture, and prevent loose soil from falling onto prepared subgrade.
- F. Verify installation of geotextile fabric and/or geo-grid where indicated on plans.

3.3 FILLING

- A. Fill to contours and elevations indicated using unfrozen materials.
- B. Employ a placement method that does not disturb or damage other work.
- C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- D. Maintain optimum moisture content of fill materials to attain required compaction density within the following ranges, unless otherwise noted or indicated on the plans or in a geotechnical evaluation:
1. Granular Soils: +/- 3 percent.
 2. Cohesive Soils Below Exterior Slabs & Pavements: 0 to +4 percent.
 3. Cohesive Soils Below Grassed Areas: 0 to +6 percent.
- E. Pipe Bedding: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth. Bedding dimensions shall be in accordance with the plans, or per manufacturers requirements.
- F. Lift Thickness: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth where heavy, self-propelled compaction equipment will be utilized, or 6 inches compacted depth where hand-guided equipment will be utilized.
- G. Slope grade away from building minimum 12 inches in first 10 ft unless noted otherwise. Make gradual grade changes. Blend slope into level areas.
- H. Relative Compaction Density shall be as follows per ASTM D698-Standard Proctor, unless otherwise noted or indicated on the plans or in a geotechnical evaluation:
1. Under foundations and floor slabs: minimum of 98% of maximum dry density.
 2. Under exterior slabs and pavement: minimum of 95% of maximum dry density.
 3. All other areas: minimum of 90% of maximum dry density.
- I. Reshape and re-compact fills subjected to vehicular traffic, or damaged or displaced due to construction operations.
- J. Maintain temporary means and methods, as required, to remove all water while fill is being placed as required, or until directed by the Owner's Representative. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

3.4 TOLERANCES

- A. Top Surface of General Filling: Plus or minus 1 inch from required elevations.
- B. Top Surface of Filling Under Paved Areas: Plus or minus 1/2 inch from required elevations.
- C. Top Surface of Aggregate Base under exterior slabs and pavements: Plus or minus 1/4 inch from required elevations.

- D. Top Surface of Aggregate Base under foundations and floor slabs: Plus or minus 1/4 inch from required elevations.

3.5 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.
- B. For delivered turf base stone and turf finish stone, perform a sieve analysis in accordance with ASTM C136 or ASTM C136M. Verify that the delivered stone gradation matches the approved shop submittal for turf stone fill materials.
- C. Perform compaction density testing on compacted fill in accordance with ASTM D1556, ASTM D2167, or ASTM D6938.
- D. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D698 ("standard Proctor").
- E. If tests indicate work does not meet specified requirements, remove work, replace and retest. Contractor shall be responsible for all costs associated with additional testing required as a result of failed tests and/or substandard work.
- F. Frequency of Tests, unless otherwise noted or indicated on the plans or in a geotechnical evaluation:
 - 1. Below Exterior Slabs & Pavement: Provide one passing density and moisture test per lift of fill per 750 square yards of area.
 - 2. Below Grass and Landscape Planting Areas: If directed by Owner's Representative proof roll only. Provide density and moisture tests only where directed by Owner's Representative.
 - 3. Utility Trenches: Provide one passing density and moisture test per 30 inches of backfill per 300 feet of trench, and no less than one passing density and moisture test per service line, or more as directed by Owner's Representative, at top of subgrade elevation.
 - 4. If a geotechnical evaluation has been prepared for the project, the recommendations of that evaluation shall govern.

3.6 CLEANING

- A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.
- B. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 32 1123
AGGREGATE BASE COURSES**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Aggregate base course: Preparation and installation.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 RELATED REQUIREMENTS

- A. Section 31 2200 - Grading: Preparation of site for base course.
- B. Section 31 2316.13 - Trenching: Compacted fill over utility trenches under base course.
- C. Section 31 2323 - Fill: Topsoil fill at areas adjacent to aggregate base course.
- D. Section 31 2323 - Fill: Compacted fill under base course.
- E. Section 32 1216 - Asphalt Paving: Finish and binder asphalt courses.
- F. Section 32 1313 - Concrete Paving: Finish concrete surface course.
- G. Section 33 0561 - Manholes and Structures: Manholes including frames.

1.4 REFERENCE STANDARDS

- A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses; 2017 (Reapproved 2021).
- B. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop; 2022, with Errata .
- C. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2019.
- D. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2012 (Reapproved 2021).
- E. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method; 2015, with Editorial Revision (2016).
- F. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)); 2012 (Reapproved 2021).
- G. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2015.
- H. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2017, with Editorial Revision (2020).
- I. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2017, with Editorial Revision (2018).
- J. North Dakota Department of Transportation (NDDOT) - Standard Specifications for Road and Bridge Construction, Current Edition.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.

- B. When storing aggregate materials on site:
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Aggregate Base, see Section 31 2323 - Fill.

2.2 SOURCE QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements for general requirements for testing and analysis of aggregate materials.
- B. Where aggregate materials are specified using ASTM D2487 classification, test and analyze samples for compliance before delivery to site.
- C. If tests indicate materials do not meet specified requirements, change material and retest.
- D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the work are as indicated.
- B. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.2 PREPARATION

- A. Prepare subgrade and proof roll in accordance with Section 31 2323 - Fill:
 - 1. If specified in the plans, Geotextile Fabric or Geo-Grid per Section 31 3721 - Geotextile Fabrics shall be installed above subgrade prior to placement of base course.
 - 2. Do not place aggregate on soft, muddy, or frozen surfaces.

3.3 INSTALLATION

- A. Except where specified elsewhere, maximum compacted lift depth of aggregate base layers shall be 6 inches.
- B. Level and contour surfaces to elevations and gradients indicated.
- C. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- D. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES

- A. Flatness: Maximum variation of 1/2 inch measured with 10 foot straight edge.
- B. Scheduled Compacted Thickness: Within 1/4 inch.
- C. Variation From Design Elevation: Within 1/4 inch.

3.5 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements for general requirements for field inspection and testing.

3.6 CLEANING

- A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

- B. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment, and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 32 1216
ASPHALT PAVING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Multiple course asphalt pavement - parking lot and roadways.

1.2 DEFINITIONS

- A. Project Coordinator:
 - 1. Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representative
 - 1. Described in Section 01 3000 - Administrative Requirements

1.3 REFERENCE STANDARDS

- A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses; 2017 (Reapproved 2021).
- B. AI MS-2 - Asphalt Mix Design Methods; 2015.
- C. AI (Asphalt Institute) MS-2 - Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types; The Asphalt Institute; current edition.
- D. AI MS-3 - Asphalt Plant Manual.
- E. AI MS-19 - Basic Asphalt Emulsion Manual; 2008.
- F. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2019.
- G. AI MS-22 - Principals of Construction of Hot Mix Asphalt Pavements.
- H. ASTM D946 - Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction; 2009a.
- I. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2017, with Editorial Revision (2020).
- J. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2017, with Editorial Revision (2018).
- K. ASTM D2041/D2041M - Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures; 2011.
- L. ASTM D2950/D2950M - Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods; 2014.
- M. ASTM D6927 - Standard Test Method for Marshall Stability and Flow of Asphalt Mixtures; 2015.
- N. ASTM D6925 - Standard Test Method for Preparation and Determination of the Relative Density of Hot Mix Asphalt (HMA) Specimens by means of the Superpave Gyrotory Compactor; 2015.
- O. North Dakota Department of Transportation (NDDOT) - Standard Specifications for Road and Bridge Construction; Current Edition.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with North Dakota Department of Transportation standard specifications for Commercial Grade Hot Mix Asphalt.
- B. Provide asphalt mix design no less than 15 days prior to beginning construction.

- C. Provide Project Coordinator or Owner's Representative with Manufacturers written certification that each transport load of asphalt cement (A.C.) meets the requirements of the specification.
- D. Mixing Plant: Complying with State of _____ Highways standard State of North Dakota Highways standard.
- E. Obtain asphaltic mix materials (aggregate and bitumen) from same source throughout entire project. Provide new mix design any time a change in source is made.

1.5 REGULATORY REQUIREMENTS

- A. North Dakota Department of Environmental Quality (NDDEQ):
 - 1. Solid Waste Division for disposal of debris.
 - 2. Water Quality Division for storm water runoff and erosion control.
 - 3. Air Quality Division for clean air standards.

1.6 FIELD CONDITIONS

- A. Do not place asphalt when temperatures are below those shown below:

Compacted Thickness	Air Temp for Surface Course	Air Temp for Subsurface Course	Existing Mat
1-1/2" or less	45 degrees F	40 degrees F	40 degrees F
More than 1-1/2"	40 degrees F	35 degrees F	40 degrees F

PART 2 PRODUCTS

2.1 MATERIALS

- A. Bituminous Materials. Conform to the requirements of Section 818 of the NDDOT Standard Specifications.
- B. Aggregate for Mix: Conform to the requirements of in Section 430.03 of the NDDOT Standard Specifications.
- C. Recycled Asphalt Pavement (RAP).
 - 1. RAP may be incorporated at a rate between 10 and 25 percent by weight.
 - 2. Maximum particle size of 1.5 inch.
 - 3. Do not allow recycled material to come in contact with the burner flame. Add binder to the combined virgin aggregate and recycled material.

2.2 ASPHALT PAVING MIXES AND MIX DESIGN

- A. Mix Design: Conform to NDDOT Standard Specifications, Section 430.03.F.
 - 1. Parking lot and roadways
 - a. Mix design shall be Superpave FAA 42 or FAA 43 and 58S-28 asphalt cement.
 - b. RAP mixtures be allowed.
- B. For batch or continuous mix plants, heat and dry aggregate to reduce the total moisture content to one-half of 1 percent or less, based on the dry weight of the aggregate.
- C. When the drum dryer mixer is used, do not allow the moisture content of the bituminous mixture to exceed 1 percent.
- D. Assure accurate proportioning into the mixer by feeding stockpiled aggregate in two or more compartments that can be accurately controlled to supply the proper mixture of aggregate.

- E. Introduce all materials uniformly into the mixing plant or the drum dryer in the proportions necessary to produce the required quality. Proportion bitumen within plus or minus 0.24 percentage points of the percentage of bitumen designated by the Owner's Representative.
- F. Introduce the required quantities of aggregate and bitumen into the mixer and mix until a uniform and complete coating of aggregate is obtained.
- G. The temperature of the bituminous mixture at discharge from the mixer must not exceed 300 degrees F.
- H. Submit proposed mix design of each class of mix for review prior to beginning of work.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that compacted subgrade and/or aggregate base is dry and ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct prior to beginning any pavement operations.
- C. Verify utility castings are properly adjusted to grade prior to beginning paving operations.

3.2 PREPARATION - TACK COAT

- A. Apply tack coat in accordance with NDDOT Standard Specifications.
- B. Apply tack coat to contact surfaces of curbs and gutters and other concrete appurtenances.
- C. Coat surfaces of manhole frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.
- D. DO NOT mix different classes, grades or types of emulsified asphalt in storage tanks, transports or distributors.
- E. Always pump from bottom of tank.
- F. Always maintain proper distributor spray bar height and spray nozzle angle.
- G. Always maintain proper distributor speed.
- H. Always sweep and clean surfaces to be tack coated.
- I. Never apply more tack coating than can be covered by the same day's operation.

3.3 PREPARATION - BITUMINOUS SEAL

- A. Follow all requirements specified in Section 420 of the Standard Specifications for Road and Bridge Construction, North Dakota Department of Transportation.

3.4 PLACING ASPHALT PAVEMENT

- A. Place asphalt base course within 24 hours of applying primer or tack coat.
- B. Place base and wearing courses to compacted thickness specified in plans.
- C. Maintain a mix laydown temperature of no less than 230 degrees F when ambient temperature is 60 degrees F or higher. When ambient temperature is below 60 degrees F, place mix with a minimum laydown temperature of 250 degrees F.
- D. Spread and finish all mixtures with a self-propelled, bituminous paver, to the required section, leaving the mixture uniformly dense, smooth, and free from irregularities. In locations where it is impractical to use self-propelled bituminous pavers, or other types of lay-down equipment, a road grader or maintainer may be used if approved by the Owner's Representative.

- E. Control the speed of paver to place the mixture uniformly and continuously without tearing or gouging. Do not exceed the Manufacturer's recommendation, and coordinate the paver speed with the output of the plant to provide for a smooth, continuous operation, minimizing starting and stopping.
- F. Level, fill or rake all transverse and longitudinal joints, high or low areas, and surface irregularities, prior to compaction. Immediately remove material dropped on previously compacted lanes.
- G. Sweep and tack previously placed layer or surface before spreading the next layer.
- H. Tack all joints and coordinate vertical construction joints in successive courses so the joints do not fall on the same vertical plane.
- I. Place pavement uniformly against the surface or edge of curb, gutters, manholes or similar structures, and at such an elevation so that the pavement is ¼-inch higher than the edge of the structure after the pavement has been compacted.
- J. Correct any low or high defective areas immediately. Correction can be accomplished by patching or cutting out the surface and replacing with fresh, hot, bituminous mixture, or by milling the surface.
- K. The sequence of rolling operations as well as the type and number of rollers must be commensurate with production, and adequate to obtain the specified density before the mat temperature falls below 185 degrees F.
- L. Thoroughly compact with hand or other mechanical tampers approved by the Owner's Representative any areas not accessible to standard asphalt rollers.
- M. Remove and replace any mixture that becomes loose, broken, or becomes mixed with dirt, shows any excess deficiency of bitumen, or is defective in any manner.
- N. Do not place hot mix on a frozen subgrade, or when weather conditions prevent the proper handling or finishing of the asphalt pavement. Presence of frost particles in or on the subgrade or base course is considered a frozen subgrade.
- O. Compact asphalt pavement sloughs with rollers capable of providing a smooth, finished, compacted slough that is free of tire marks and unevenness or drop-off.
- P. Adjust any casting that is not ¼-inch below the top of the finished surface. Adjust casting upward if greater than ¼-inch below the top of the finished surface.

3.5 TOLERANCES

- A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.
- B. Compacted Thickness: Within 1/4 inch of specified or indicated thickness.
- C. Variation from True Elevation: Within 1/8 inch.
- D. Asphalt cement content within 0.24 percent of approved mix design as determined by daily cutoff report.
- E. Adjacent surface match: New finished surface must be ¼-inch above any adjacent surface.

3.6 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for general requirements for quality control.

3.7 CLEANUP AND PROJECT CLOSEOUT

- A. Return all disturbed areas to a condition equal to that prior to construction.
Clean, remove and dispose of all debris and residue.
- B. Sweep all streets or adjacent paved surfaces following paving.

3.8 PROTECTION

- A. Immediately after placement, protect pavement from mechanical injury until surface temperature is less than 140 degrees F (60 degrees C).
- B. Do not allow traffic on the completed surfacing until the mat has been compacted and has cooled sufficiently to prevent damage.
- C. Damage to the asphalt pavement due to inadequate protection shall be repaired by the Contractor to the satisfaction of the Owner's Representative at no cost to the Owner.

3.9 PROJECT RECORD DOCUMENTS

- A. Record all underground utilities raised or lowered and furnish a copy of "as constructed" plans to the Project Coordinator or Owner's Representative.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment, and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 32 1313
CONCRETE PAVING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Concrete sidewalks, stair steps, integral curbs, and gutters.
- B. Concrete Formwork.
- C. Concrete Reinforcement.
- D. Joint sealing for concrete expansion joints.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 RELATED REQUIREMENTS

- A. Section 31 2200 - Grading: Preparation of site for paving and base and preparation of subsoil at pavement perimeter for planting.
- B. Section 31 2323 - Fill: Compacted subgrade.
- C. Section 32 1123 - Aggregate Base Courses: Aggregate base course.
- D. Section 33 0561 - Manholes and Structures: Manholes, including frames; gutter drainage grilles, covers, and frames for placement by this section.

1.4 REFERENCE STANDARDS

- A. ACI 211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide; 2022.
- B. ACI 301 - Specifications for Concrete Construction; 2020.
- C. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).
- D. ACI 305R - Guide to Hot Weather Concreting; 2020.
- E. ACI 306R - Guide to Cold Weather Concreting; 2016.
- F. ACI 308R - Guide to Curing Concrete; American Concrete Institute International; 2001 (Reapproved 2008).
- G. ACI 347R - Guide to Formwork for Concrete; 2014.
- H. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2022.
- I. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.
- J. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2023.
- K. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2023.
- L. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2023.
- M. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2015.
- N. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
- O. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2023.
- P. ASTM C231/C231M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method; 2014.

- Q. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).
- R. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2019.
- S. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2019, with Editorial Revision (2022).
- T. ASTM C618 - Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2023, with Editorial Revision.
- U. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 2017.
- V. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2014.
- W. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016.
- X. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types); 2023.
- Y. ASTM D1752 - Standard Specification for Preformed Sponge Rubber, Cork, and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2018 (Reapproved 2023).
- Z. ASTM D8139 - Standard Specification for Semi-Rigid, Closed-Cell Polypropylene Foam, Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction; 2023.
- AA. ASTM D5249 - Standard Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints; 2010.
- BB. North Dakota Department of Transportation (NDDOT) - Standard Specifications for Road and Bridge Construction; Current Edition.

PART 2 PRODUCTS

2.1 PAVING ASSEMBLIES

- A. All site concrete shall be, at a minimum, 4,000 psi at 28 days, unless specified elsewhere. Thickness, section and reinforcement as indicated on plans.

2.2 FORM MATERIALS

- A. Form Materials: Conform to ACI 301 and ACI 347.
 - 1. Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
 - 2. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
- B. Flexible Forms:
 - 1. Preformed joint filler; non-extruding bituminous type (ASTM D1751).
 - a. Thickness: 3/4 inch.
 - b. To be used for concrete forms along curved pavement edges only. Not for use as expansion joint filler material.

2.3 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) yield strength; deformed billet steel bars; unfinished.

- B. Dowels: ASTM A36, Grade 60 - 60,000 psi yield strength; smooth steel bars; unfinished.
- C. Tie Wire: Annealed, minimum 16 gage, 0.0508 inch.
- D. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
- E. Provide stainless steel, galvanized, plastic, or plastic coated steel components for placement within 1-1/2 inch of weathering surface.

2.4 CONCRETE MATERIALS

- A. Obtain cementitious materials from same source throughout.
- B. Cement: ASTM C150/C150M, Normal - Type I Portland cement, gray color.
- C. Cement: ASTM C150/C150M, Type IIA - For exterior concrete exposed to earth.
- D. Fine and Coarse Mix Aggregates: ASTM C33/C33M.
 - 1. Aggregate shall conform to Section 802 of the NDDOT Standard Specifications, current edition.
 - 2. Acquire all aggregates for entire project from the same source.
- E. Fly Ash: ASTM C618, Class C or F.
- F. Water: Clean, and not detrimental to concrete.
 - 1. Water/Cement ratio - 0.45 max.
- G. Air-Entraining Admixtures: ASTM C260/C260M.
- H. Chemical Admixtures: ASTM C494/C494M, Type A - Water Reducing, Type C - Accelerating, and Type G - Water Reducing, High Range and Retarding.
 - 1. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

2.5 ACCESSORIES

- A. Slab Isolation/Expansion Joint Filler: 3/4 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
 - 1. Material: ASTM D 4819, Type 2, flexible, closed cell, non-staining, compressible, polyethylene foam.
 - 2. Material: ASTM D8139, semi-rigid, closed-cell, compressible polypropylene foam.
 - 3. Manufacturers:
 - a. Nomaco, Inc; Nomaflex Expansion Joint Filler with Void Cap Option: www.nomaco.com/#sle.
 - b. Nomaco, Inc; Fastflex Slab Isolation Joint Filler with Tear-Off Strip: www.nomaco.com/#sle.
 - c. W.R. Meadows, Inc.; Deck-O-Foam expansion joint filler with tear off strip.
 - d. Approved equivalent_____.
- B. Joint sealant for sidewalks or shared use paths shall be cold applied, gray or white color, and suited for foot traffic. Joint sealing material type shall conform to Section 826 of the NDDOT Standard Specifications for Road and Bridge Construction, current edition.
- C. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
- D. Curing Materials: White-pigmented liquid curing compound conforming to ASTM C309.

2.6 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Concrete Properties:
 - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 4,000 psi.
 - 2. Fly Ash Content: Maximum 25 percent of cementitious materials by weight.
 - 3. Maximum Slump: 4 inches.
 - 4. Total Air Content: 5 to 8 percent.

2.7 MIXING

- A. Mixing shall be per North Dakota Department of Transportation standards.
- B. Concrete Supplier shall provide a load ticket for each delivery of concrete.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify compacted subgrade and/or aggregate base is acceptable and ready to support concrete section to be placed and associated imposed loads.
- B. Verify gradients and elevations of base are correct.

3.2 SUBBASE

- A. See Section 32 1123 for construction of aggregate base and subgrade preparation requirements for work in this Section.

3.3 PREPARATION

- A. Moisten base to minimize absorption of water from fresh concrete.
- B. Coat surfaces of manhole and casting frames with oil to prevent bond with concrete pavement.
- C. Notify Project Coordinator minimum 24 hours prior to commencement of concreting operations.

3.4 FORMING

- A. Place and secure forms to correct location, dimension, profile, and gradient, in accordance with ACI 347.
- B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
- C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement. Joint filler shall be held 1/2 inch below top of concrete.

3.5 REINFORCEMENT

- A. Place reinforcement as indicated on plans.
- B. Install doweled expansion joints in accordance with plan details and as follows:
 - 1. Monolithic curb and gutter: Doweled expansion joints shall be installed every 100 feet and at the nearest joint on either side of curb inlets (maximum 10 feet from edge of inlets). Dowels shall be smooth, 3/4 inch diameter, 24 inches in length, centered on the expansion joints, and equipped with a bond breaker. Bond breaker shall be either 16 inch paper tubes, crimped at outside ends, or greased full length.
 - 2. Sidewalk: Doweled expansion joints shall be installed every 100 feet. Dowels shall be 12 inch long deformed #4 reinforcing steel, 12 inches on-center, centered on joint and in slab, and greased full length.

3.6 COLD AND HOT WEATHER CONCRETING

- A. Follow recommendations of ACI 305R when concreting during hot weather.
- B. Follow recommendations of ACI 306R when concreting during cold weather.

- C. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen. Concrete temperature shall be maintained between 40 degrees F and 90 degrees F during the curing period.

3.7 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R.
- B. In accordance with ACI specifications, concrete that has not been discharged within 90 minutes from when cementitious materials were first added to water, and/or after drum revolutions have exceeded 300 from when cementitious materials were first added to water, shall be rejected and shall not be incorporated into the work. No payment shall be made for concrete that has been rejected for non-conformance with aforementioned requirements.
- C. Do not place concrete when base surface is saturated or ponding water.
- D. In dry conditions, moisten base course prior to concrete placement. Use appropriate procedures to accomplish moistened base without creating areas of ponding water.
- E. Ensure reinforcement, inserts, embedded parts, and formed joints are not disturbed during concrete placement.
- F. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

3.8 JOINTS

- A. Place 3/4 inch wide expansion joints at 100 foot intervals and to separate paving from vertical surfaces, footings, foundations and building walls, concrete currently in place (existing or new), and other components.
 - 1. Form joints with joint filler extending from bottom of pavement to within 1/2 inch of finished surface.
 - 2. Secure to resist movement by wet concrete.
 - 3. All locations requiring expansion joints may not be indicated on plans. Contractor shall ensure that adequate expansion joints are provided at appropriate locations to ensure damage to site improvements does not occur due to expansion and contraction of concrete members.
 - 4. All expansion joint shall be sealed.
- B. Provide control joints:
 - 1. Joint spacing shall be per plans. Where not explicitly indicated, a minimum spacing of 4 feet shall be used. Maximum spacing shall be equal to a distance in feet equal to 2 times the pavement depth in inches.
 - 2. Between sidewalks and curbs.
 - 3. Between curbs and concrete pavement.
 - 4. Control joints may be tooled or saw cut. Tooled joints shall provide 1/4 inch radius and be hand-cut 1/3 depth of slab during finishing.
 - 5. Saw cut control joints shall be 1/8 inch wide and shall be installed after concrete has cured sufficiently to prevent damage. Saw cut control joints shall be cut 1/3 the depth of the slab.

3.9 FINISHING

- A. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius.
- B. Curbs and Gutters: Light broom, texture perpendicular to pavement direction. Provide tooled radius at joints and edges per plan details.
- C. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

- D. Contractor shall not add additional water to the surface of concrete to assist in finishing.

3.10 JOINT SEALING

- A. Expansion joints shall be filled within 10 days after placement and before opening pavement to traffic.
- B. All vertical joint faces shall be cleaned. Oil, asphalt, curing compound, paint, rust, and other foreign materials shall be completely removed. Just before the joints are sealed, the Contractor shall clean the joints with compressed air at a working pressure of at least 90 psi. The joints shall not be sealed when the air temperature is below 40° F.
- C. Adhesive backed polyethylene tape (bond breaker tape) shall be applied to the top of the joint filler to prevent three-sided adhesion.
- D. Install sealant in accordance with manufacturers instructions. See plans for joint seal details. Joint sealant shall be tooled to provide 1/4-inch rounded recess finish.

3.11 TOLERANCES

- A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.
- B. Maximum Variation From True Position: 1/4 inch.

3.12 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements for general requirements for field inspection and testing.
 - 1. Provide free access to concrete operations at project site and cooperate with appointed firm.
 - 2. Contractor shall pay for and provide proposed mix design, to be submitted to Owner's Representative for review prior to commencement of concrete operations.
 - 3. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.
 - 4. Contractor shall pay for all additional tests and inspection required due to failing work and/or tests.
- B. Compressive Strength Tests: ASTM C39/C39M. For each test, mold and cure three concrete test cylinders. At a minimum, obtain test samples from the first load of every pour and for every 50 cu yd of each class of concrete placed thereafter.
 - 1. Take one additional test cylinder during cold weather concreting, cured on the job site under same conditions as the concrete it represents.
 - 2. The cylinders comprising one set will be made from the same sample of concrete and shall be tested at the following schedule: one (1) cylinder tested at seven (7) days and one (1) at twenty-eight (28) days. The third cylinder shall be held by the testing agency until the Owner or Owner's Representative orders it tested or disposed of. If an additional cylinder is cast for cold weather concreting, it shall be tested at twenty-eight (28) days.
 - 3. Additional cylinders cast at the Contractor's request to facilitate early opening to traffic shall be paid for by the Contractor.
- C. Slump Testing: Slump tests shall be performed in accordance with ASTM C143 for each sample taken. The maximum allowable slump of the concrete mix shall be 4 inches.

- D. Air Entrainment: Air content in accordance with ASTM C231 shall also be tested and recorded for each sample of concrete used in making test cylinders. The air content shall fall within the range of 5 percent to 8 percent.
- E. Maintain records of placed concrete items. Record date, location of pour, quantity placed, air temperature, and test samples taken.
- F. Test Results: The testing agency shall report test results in writing to the Owner's Representative within 24 hours of test.

3.13 DEFECTIVE CONCRETE

- A. Defective Concrete:
 - 1. Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
 - 2. Concrete failing to meet specifications for compressive strength, air entrainment, consistency (slump) and/or composition.
 - 3. Concrete that is excessively honey-combed or contains embedded debris.
 - 4. Concrete that is spalling, experiencing surface delamination, and/or any other form of premature degradation.
- B. Any concrete not meeting the requirements of this Section 32 1313 or any other requirements of the contract documents shall be replaced by the Contractor to the satisfaction of the Owner's Representative at no cost to the Owner. Replaced concrete shall be tested at the same schedule as other concrete and such testing shall be incidental.

3.14 PROTECTION

- A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.
- B. Do not permit vehicular traffic over pavement, curb, and/or driveways until concrete has reached 3,000 psi compressive strength, as established by cylinder testing data, and until all joints have been sealed.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 32 9219
SEEDING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Preparation of subsoil.
- B. Placing topsoil.
- C. Seeding, mulching and fertilizer.

1.2 RELATED REQUIREMENTS

- A. Section 31 2200 - Grading: Topsoil material.
- B. Section 31 2200 - Grading: Preparation of subsoil and placement of topsoil in preparation for the work of this section.

1.3 DEFINITIONS

- A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.
- B. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- C. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.4 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

1.5 REGULATORY REQUIREMENTS

- A. Comply with regulatory agencies for fertilizer and herbicide composition.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable. Deliver seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

PART 2 PRODUCTS

2.1 SEED MIXTURE

- A. Seed Mixture:
 - 1. Type 2: Non-Irrigated Seed Mix - General:
 - a. Fairway Crested Wheatgrass: 50%
 - b. Sheeps Fescue: 30%
 - c. Perennial Ryegrass: 20%
 - d. Application Rate: 8 pounds per 1,000 square feet.
- B. Substitutions: Seed mix substitutions must be submitted to Owner's Representative in writing, and approved by Owner.

2.2 ACCESSORIES

- A. Mulching Material: Wood cellulose fiber, dust form, free of growth or germination inhibiting ingredients. Apply hydro-mulch at a rate of 750 pounds per 10,000 square feet.

- B. Fertilizer: 15 pounds/ 10,000 square feet; recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil.
- C. Water: Clean, fresh and free of substances or matter that could inhibit vigorous growth of grass.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that prepared soil base is ready to receive the work of this Section.

3.2 PREPARATION

- A. Prepare subgrade in accordance with Section 31 2200.
- B. Place topsoil in accordance with Section 31 2200.

3.3 FERTILIZING

- A. Apply fertilizer in accordance with manufacturer's instructions.
- B. Apply after smooth raking of topsoil and prior to roller compaction.
- C. Do not apply fertilizer at same time or with same machine as will be used to apply seed.
- D. Mix thoroughly into upper 2 inches of topsoil.
- E. Lightly water to aid the dissipation of fertilizer.

3.4 SEEDING

- A. Apply seed at rate appropriate to seed type listed on Plan.
- B. Do not seed areas in excess of that which can be mulched on same day.
- C. Do not sow immediately following rain, when ground is too dry, or during windy periods.
- D. Roll seeded area with roller not exceeding 112 lbs, use caution to not over compact soil.
- E. Apply in two even applications, applications shall be perpendicular to each other.
- F. Immediately following seeding and compacting, apply hydromulch to a thickness of 3/16 inches. Maintain clear of shrubs and trees.
- G. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.
- H. Following germination, immediately re-seed areas without germinated seeds that are larger than 2 by 2 inches.

3.5 HYDROSEEDING

- A. Apply seeded slurry with a hydraulic seeder at a rate of 8 lbs per 1000 sq ft evenly in two intersecting directions.
- B. Do not hydroseed area in excess of that which can be mulched on same day.
- C. Immediately following seeding, apply mulch to a thickness of 3/16 inches to areas indicated on plan. Maintain clear of shrubs, trees and structures.
- D. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.
- E. Following germination, immediately re-seed areas without germinated seeds that are larger than 4 by 4 inches.

3.6 PROTECTION

- A. Cover seeded slopes where grade is 4 inches per foot or greater with erosion control blanket. Unroll fabric onto slopes without stretching or pulling.

- B. Lay fabric smoothly on surface, bury top end of each section in 6 inch deep excavated topsoil trench. Provide 12 inch overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.
- C. Secure outside edges and overlaps at 36 inch intervals with stakes.
- D. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.
- E. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches.

3.7 MAINTENANCE

- A. Provide maintenance of seeded areas for three consecutive months during during the growing season following the Date of Final Review and Acceptance at no extra cost to Owner.
- B. Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition.
- C. Mow grass at regular intervals to maintain at a maximum height of 3 inches. Do not cut more than 1/3 of grass blade at any one mowing.
- D. Neatly trim edges and hand clip where necessary.
- E. Immediately remove clippings after mowing and trimming.
- F. Water to prevent grass and soil from drying out.
- G. Roll surface to remove minor depressions or irregularities.
- H. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.
- I. Immediately reseed areas that show bare spots.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, Engineer will make measurement in accordance with each specific bid item. For lump sum (LS) bid items, measurements will not be made.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. Any required reseeding shall be incidental.
- C. Payment shall be fifty percent at the time of seeding and mulching. Final payment for seeding shall not be issued until the grass is established and accepted by the Owner. Established seeding shall mean weed free with no bare spots larger than four (4) square inches.

END OF SECTION

**SECTION 33 0561
MANHOLES AND STRUCTURES**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Monolithic concrete manholes with masonry transition to lid frame, covers, anchorage, and accessories.
- B. Precast Concrete Catch Basins.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 RELATED REQUIREMENTS

- A. Section 33 4211 - Stormwater Gravity Piping.

1.4 REFERENCE STANDARDS

- A. AASHTO HB - Standard Specifications for Highway Bridges; 2005, with Errata.
- B. ASTM A48/A48M - Standard Specification for Gray Iron Castings; 2022.
- C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- D. ASTM C55 - Standard Specification for Concrete Building Brick; 2023.
- E. ASTM C478 - Standard Specification for Circular Precast Reinforced Concrete Manhole Sections; 2019.
- F. ASTM C478M - Standard Specification for Circular Precast Reinforced Concrete Manhole Sections (Metric); 2019.
- G. ASTM C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals; 2018.
- H. ASTM C923M - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals (Metric); 2018.
- I. ASTM C1634 - Standard Specification for Concrete Facing Brick and Other Concrete Masonry Facing Units; 2023a.

1.5 QUALITY ASSURANCE

- A. Manufacturers must certify in writing, if requested by Owner's Representative, that all manholes, curb inlets, catch basins and appurtenances were constructed within the guidelines of the appropriate ASTM specifications.
- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- C. Precast sections shall be legibly stamped with casting date.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Manufacturer is responsible for providing specific instructions for the proper delivery, storage and handling.
- B. Install manholes, curb inlets, catch basins and components without damage. Immediately remove any damaged components from the project site.

1.7 FIELD CONDITIONS

- A. Maintain materials and surrounding air temperature to minimum 50 degrees F prior to, during, and 48 hours after completion of masonry work.

PART 2 PRODUCTS

2.1 CONCRETE MANHOLES

- A. Weight Rating: H 10 according to AASHTO HB.

2.2 MATERIALS

- A. Precast Reinforced Concrete Pipe Manholes:
 - 1. Precast reinforced concrete manhole risers and top sections shall conform to ASTM C478.
 - 2. All barrel-to-barrel joints shall be sealed using a rubber o-ring gasket. The height of the manhole shall be shown on the plans and the diameter shall be 48 inches minimum or larger if recommended by the manhole fabricator and approved by the Owner's Representative.
 - 3. Steps shall not be placed in manholes unless specified. If specified, the steps to be furnished and installed shall be rubber coated over steel reinforcing of the type manufactured by the Delta Products (Delta-Surefoot Company) or approved equal.
 - 4. Sanitary manholes shall be equipped with an eccentric reducing cone. Storm and air release manholes shall be equipped with a precast cover slab with Type 2 butt joint.
- B. Catch Basins: 30-inch inside diameter precast reinforced concrete catch basins; see plans for details.
 - 1. Steps shall not be placed in catch basins unless specified. If specified, the steps to be furnished and installed shall be rubber coated over steel reinforcing of the type manufactured by the Delta Products (Delta-Surefoot Company) or approved equal.
- C. Connectors for Sanitary Sewer and Air Release Manholes: Flexible gasket connectors equal to "PSX" as manufactured by Press-Seal Gasket Corporation.
- D. Manhole Adjusting Rings: Modular reinforced precast concrete or polyethylene adjusting rings.
- E. Sealant: Butyl rubber, 1"x1" in roll form on paper, equal to "E-Z Stick" as manufactured by Press-Seal Gasket Company.
- F. Manhole Invert: Portland cement concrete with a 28-day compressive strength of 3000 psi.
- G. Chimney Seal: All manhole chimneys shall be equipped with an external chimney seal as manufactured by Rinker Materials, or approved equal.
- H. Mortar: Mortar shall be a compound of one (1) part Portland Cement to two (2) parts of sand by volume to which hydrated lime may be added not to exceed 10 percent of the cement by weight.

2.3 COMPONENTS

- A. Solid lid shall be self self sealing and frame castings for manholes shall be as manufactured by Neenah Foundry, Inc. (model R-1733), East Jordan Iron Works (model 1205), or approved equal.

2.4 MANUFACTURERS

- A. North Dakota Concrete Products (Rinker Materials) - Precast manholes, curb inlets and catch basins, precast adjusting rings.
- B. Neenah Foundry Co. - Manhole, curb inlet and catch basin frames and lids.
- C. East Jordan Iron Works - Manhole, curb inlet and catch basin frames and lids.
- D. Press Seal Gasket Corporation - Rubber sealant; flexible gasket connectors.
- E. Rinker Materials - Manhole chimney seals.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify items provided by other sections of work are properly sized and located.
- B. Verify that built-in items are in proper location, and ready for roughing into Work.
- C. Verify excavation for structures are correct.
- D. Verify height of structure; account for minimum of two 2" adjusting rings.

3.2 PREPARATION

- A. Coordinate placement of inlet and outlet pipes or duct sleeves required by other sections.

3.3 INSTALLATION

- A. Establish elevations and pipe inverts for inlets and outlets as indicated in drawings.

3.4 MANHOLES AND INLETS

- A. Place base on stable, level subgrade.
- B. Place sections plumb and level.
- C. Install joint sealant between all sections.
- D. Backfill and compact uniformly around structures to required density. See Section 31 2323 for fill types and density requirements.
- E. Set adjusting rings, frame and cover to correct elevation. Coordinate with other adjacent work as necessary.
 - 1. This item includes all labor, materials, and equipment necessary to adjust the various castings to the proper line and grade. Note that wood shims to adjust rings and castings are not allowed. Changes in grade shall be made as follows:
 - a. With Concrete Adjusting Rings
 - 1) The maximum height of adjustment is 6 inches. Adjustments shall be made with a maximum of two (2) precast adjusting rings whenever possible. Fine adjustments shall be made by adjusting mortar depths. The castings shall be laid in a full bed of mortar not less than 1/2" in depth. The rings and cone section shall be cleaned to assure a flat seating surface and the rings installed in alignment with no noticeable offsets. Broken pieces and partial sections of adjusting rings are not allowed. Adjusting rings must be one continuous piece.
 - b. With Polyethylene Adjusting Rings
 - 1) The maximum height of adjustment is 6 inches. Adjustments shall be made with polyethylene adjustment rings. The cone shall be cleaned and the rings dry stacked to determine the best ring height and slope ring combination to obtain the proper height and slope match. Once this is determined, the rings shall be marked with a vertical line for future reference and disassembled. A 1/4 inch bead of butyl caulk shall be applied to the cone surface and the first ring placed on the cone section. Another head of butyl caulk shall be placed on the bottom of the next ring as close as possible to the male lip and this ring installed interlocking with the first and aligning the vertical line. This procedure is repeated for each adjustment ring, including caulking the joint between the slope ring and the casting.
 - 2. Care shall be taken to adjust the casting to the proper grade so the final riding surface is smooth, free of bumps and conforms to the alignment and grade of the adjoining concrete. Any castings not satisfying these

requirements shall be redone to the satisfaction of the Owner's Representative. Castings shall be set 1/4 inch below the finished surface.

3. The casting to grade item also includes cleaning all construction debris or dirt from the manhole or inlet bottom and installing a wiped mortar finish around the inside circumference of the precast concrete adjusting rings.
- F. Form inverts, if necessary, with cast-in-place concrete, carefully finishing and troweling to true shape of the lower half of the sewer pipe and sloping up of the manhole, providing positive drainage to the flow line and effluent. Flow line of invert shall be smooth finish.
- G. Plug all lift holes with mortar.
- H. For storm sewer manholes and inlets, seal all pipe penetrations with concrete. Provide smooth, watertight, troweled surface finish.
- I. Coordinate with other sections of work to provide correct size, shape, and location.

3.5 TOLERANCES

- A. Final elevations for inverts and rim shall be within plus or minus 0.02 feet (1/4-inch) of the specified or staked elevation.
- B. Finished manhole elevations shall be 1/4-inch lower than finished pavement grade.

3.6 FIELD QUALITY CONTROL

- A. Provide proper compaction around manholes, curb inlets and catch basins.
- B. Check for proper invert flow.
- C. Check for infiltration and exfiltration and correct if necessary.
- D. Regularly check temporary sewage handling equipment and piping (if in use) to avoid spills or backup.

3.7 CLEANUP AND PROJECT CLOSEOUT

- A. Clean all debris from manholes, curb inlets and catch basins. Individually remove cover and check each one.
- B. Properly adjust all frames to the proposed grade.

3.8 PROJECT RECORD DOCUMENTS

- A. Provide Project Coordinator with a complete set of "as constructed" plans.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment, and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 33 4211
STORMWATER GRAVITY PIPING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Storm drainage piping, fittings, and accessories.
- B. Pipe culvert, joints and accessories.
- C. Connection of drainage system to municipal sewers.
- D. In-Line Drains, Drain Basins, Trench drains.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 RELATED REQUIREMENTS

- A. Section 31 2316.13 - Trenching: Trenching for utilities and backfill.
- B. Section 31 2323 - Fill: Bedding and backfilling.
- C. Section 33 0561 - Manholes and Structures.

1.4 REFERENCE STANDARDS

- A. AASHTO M 294 - Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter; 2021.
- B. AASHTO M 330 - Standard Specification for Polypropylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter; 2013.
- C. ASTM A48/A48M - Standard Specification for Gray Iron Castings; 2022.
- D. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe; 2022a.
- E. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets; 2021.
- F. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120; 2021a.
- G. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications; 2020.
- H. ASTM D2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 2021.
- I. ASTM D3212 - Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals; 2007 (Reapproved 2013).
- J. ASTM D3350 - Standard Specification for Polyethylene Plastics Pipe and Fittings Materials; 2021.
- K. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe; 2014.
- L. ASTM F2306 / F2306M - Standard Specification for 12 to 60 in. Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Gravity Flow Storm Sewer and Subsurface Drainage Applications; 2015.
- M. ASTM F2648 - Standard Specification for 2 to 60 inch [50 to 1500 mm] Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Land Drainage Applications; 2013.

- N. ASTM F2736 - Standard Specification for 6 to 30 in. (152 To 762 mm) Polypropylene (PP) Corrugated Single Wall Pipe And Double Wall Pipe; 2013 (Editorial Change 1, 2014).
- O. ASTM F2881 - Standard Specification for 12 to 60 in. [300 to 1500 mm] Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications; 2011 (Reapproved 2015).

1.5 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Manufacturer's Installation Instructions: Indicate special procedures required to install Products specified.
- C. Project Record Documents:
 - 1. Record location of pipe runs, connections, manholes, inlets, catch basins, cleanouts, and invert elevations.
 - 2. Identify and describe unexpected variations in subsoil conditions or discovery of uncharted utilities.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Handle, deliver and store all pipe and materials in accordance with manufacturer's recommendations.
- B. Immediately remove from site and appropriately dispose of any damaged materials.
- C. Use proper equipment to handle all materials.

PART 2 PRODUCTS

2.1 STORMWATER PIPE MATERIALS

- A. If not specified on the plans, pipe material shall be selected by the Contractor and approved by the Owner's Representative. Pipe materials shall be limited to those included in this specification.
- B. Reinforced Concrete Storm Sewer Pipe: Conform to the requirements of ASTM C76. Unless otherwise specified, all pipe shall be Class III for 24-inch and smaller and Class II for 27-inch and larger in accordance with ASTM C76, Wall B. All pipe sections shall be cast in sections 8 feet, 6 feet, or 4 feet long, except that the variable length sections may be cast in order to match at manholes and inlets.
 - 1. Pipe joints shall be bell and spigot with rubber gaskets.
- C. Polyvinyl Chloride Storm Sewer Pipe: Polyvinyl chloride storm sewer (PVC) pipe- 15 inches or smaller shall conform to the requirements of ASTM D3034 for type PSM, PVC sewer pipe and shall have an SDR of 35, all of which shall be stamped on the pipe. Polyvinyl chloride sewer pipe 18 inches or larger shall conform to the requirements of ASTM F679-PS46. PVC sewer shall have the elastomeric gasket type joint providing a watertight seal.
 - 1. Schedule 40 PVC pipe conforming to ASTM D1785 and ASTM D2665 shall be considered an "or-equal" substitution for SDR 35 PVC pipe.
- D. Polypropylene Pipe: Corrugated Polypropylene Pipe shall be ADS HP Storm as manufactured by ADS, Inc. or approved equal, with smooth interior walls and gasketed, integral bell and spigot joints.
 - 1. 12- through 30-inch (300 to 750 mm) pipe shall have a smooth interior and annular exterior corrugations and meet or exceed ASTM F2736 and AASHTO M330.

2. Pipe shall be joined with a gasketed integral bell & spigot joint meeting the requirements of ASTM F2736 or F2881, for the respective diameters.
 3. 12- through 60-inch (300 to 1500 mm) pipe joints shall be watertight according to the requirements of ASTM D3212. Spigots shall have gaskets meeting the requirements of ASTM F477. Gasket shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gasket is free from debris. A joint lubricant available from the manufacturer shall be used on the gasket and bell during assembly. Pipe bells shall be reinforced with a polymer composite band, installed by the manufacturer.
 4. Fittings shall conform to ASTM F2736, ASTM F2881 and AASHTO M330, for the respective diameters. Bell & spigot connections shall utilize a spun-on, welded or integral bell and spigot with gaskets meeting ASTM F477. Bell & spigot fittings joint shall meet the watertight joint performance requirements of ASTM D3212. Corrugated couplings shall be split collar, engaging at least 2 full corrugations.
 5. Polypropylene compound for pipe and fitting production shall be impact modified copolymer meeting the material requirements of ASTM F2736, Section 4, ASTM F2881, Section 5 and AASHTO M330, Section 6.1, for the respective diameters.
- E. Pipe bedding and installation shall conform to all manufacturers requirements.

2.2 BEDDING AND COVER MATERIALS

- A. Pipe Bedding and Backfill Material: As specified in Section 31 2323.
- B. Pipe Cover Material: As specified in Section 31 2323.

PART 3 EXECUTION

3.1 TRENCHING

- A. See Section 31 2316.13 - Trenching for additional requirements and Section 31 2323 - Fill for pipe bedding and backfill requirements.
- B. Hand trim excavation for accurate placement of pipe to elevations indicated.

3.2 INSTALLATION - PIPE

- A. Verify that trench cut is ready to receive work and excavations, dimensions, and elevations are as indicated on plans.
- B. Install pipe, fittings, and accessories in accordance with manufacturer's instructions. Seal watertight.
- C. Lay pipe to slope gradients noted on plans; with maximum variation from true slope of 1/8 inch in 10 feet.
- D. Shore pipe to required position; retain in place until after compaction of adjacent fills. Ensure pipe remains in correct position and to required slope.
- E. Pipe bedding and backfill per Section 31 2323 and manufacturers recommendations.

3.3 FIELD QUALITY CONTROL

- A. Perform field inspection in accordance with Section 01 4000 - Quality Requirements.
- B. Maximum Variation From Intended Elevation of Culvert Invert: 1/2 inch (12 mm).
- C. Maximum Offset of Pipe From True Alignment: 1 inch (25 mm).
- D. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.

3.4 PROTECTION

- A. Protect pipe, bedding and cover from damage or displacement until backfilling operation is in progress.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment, and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.
- C. Payment for all items of work listed on the bid form will be for the actual number of units approved by the Owner's Representative. Payment includes excavation, hand trimming of excavation, bedding, materials, equipment and backfilling.

END OF SECTION

SPECIAL PROVISIONS
McCOY HALL STORM SEWER REALIGNMENT
VALLEY CITY STATE UNIVERSITY
VALLEY CITY, NORTH DAKOTA

GENERAL

- A. Some provisions in sections under the Technical Specifications sections may not apply to this project. If discrepancies occur between the Special Provisions and other contract specifications, the Special Provisions shall govern.
- B. The Contractor shall not sublet, sell, transfer, assign, or otherwise dispose of the contract or any portion of it without the Owner's written consent.
- C. Requests for permission to sublet, assign, or otherwise dispose of any portion of the contract shall:
 - 1. Be in writing.
 - 2. Be accompanied by documentation showing that the organization which will perform the work is experienced and equipped for such work.
- D. No subcontracts or transfer of contract shall relieve the Contractor of liability under the Contract and Bonds.
- E. The Contractor will be responsible for conducting a bi-weekly reporting/planning meeting. The Contractor shall provide a suitable meeting facility. It will be the Contractor's responsibility to prepare minutes for each meeting and to make appropriate distribution of the minutes. Meeting minutes shall be distributed within 24 hours of the meeting. The Contractor will be required to provide a written schedule of the next week's work and a tentative schedule of the following week. The reporting/planning meeting will include discussion of problems encountered during the current week; information of interest to local authorities, subcontractors, utilities, and next week's prospective schedule. All costs for the weekly reporting/planning meeting including, but not limited to, providing minutes, schedules and meeting facility room shall be included in the price bid for other items.
- F. The Contractor shall contact the appropriate Tribal, State, County, Township or City officials to determine if there are any "No Haul Routes" or "Restricted Routes" prior to preparing a bid for this project. The gross vehicle weight on all county and township roads shall not exceed 80,000 pounds unless approved by the local agency.
- G. Contractor shall provide a one (1) week notice to the Engineer, Valley City State University, and adjacent property Owners prior to beginning any construction.
- H. The Owner shall provide one time construction staking and survey services. Re-staking shall be billed to the Contractor. The Engineer will provide construction staking. The Contractor will be responsible for scheduling and coordinating construction staking. The Contractor shall provide a minimum of 48 hours advance notice for all staking.

WORKING HOURS

Work shall take place on Monday through Friday from 7 AM to 10 PM, Saturday from 7 AM to 7 PM and on Sundays by permission only.

STORM SEWER ABANDONMENT

An existing storm sewer crosses under McCoy Hall from an inlet south of the building to the storm sewer in Viking Drive. This work consists of disconnecting the storm sewer from the storm main, patch the storm sewer main or manhole in the street, removing the pipe within the street up to the curb and gutter, filling the storm sewer with a flowable cementitious material until the entire pipe is full as indicated on the plan sheets. Include the cost for labor, materials and equipment in the unit price bid for "STORM SEWER ABANDONMENT".

PAY ITEMS SUMMARY

- A. Quantities for the bid items may be substantially changed or eliminated at the discretion of the engineer in the field. The unit price shall govern regardless of the quantity used, and an increase or decrease from plan quantity shall not be accepted as a reason to negotiate a pay adjustment unless the thresholds set forth in the General Conditions are exceeded.
- B. Payment for all items of work listed on the bid form shall be as shown in the specifications or special provisions.

MATERIALS TESTING

- A. The Contractor shall pay for all tests.

UTILITIES

- A. Contractor shall be responsible for:
 - 1. Notifying all utilities.
 - 2. Obtaining the location of all utilities prior to excavation.
- B. The locations of utilities shown on the plans are approximate and were derived from field observations and public records. The project area may contain more utilities than those shown on the plans.
- C. The following is a partial list of utilities that may affect the project:

1.	North Dakota One Call Utility Location Service	1-800-795-0555
2.	Valley City Public Works Electrical, City Water & Sewer	1-701-845-0380 1-701-845-4255
3.	Montana Dakota Utility Company Natural Gas, (if no answer)	1-701-845-0831 1-800-472-2150
4.	Century Link Phone, Internet	1-877-348-9007
5.	CSI Cable TV, Internet	1-701-845-4383
6.	BEK Communications Fiber Optic	1-701-319-0248

BOND & MOBILIZATION

This work consists of all bonding costs, movement of personnel, equipment, and supplies necessary for work on the project; and all other work and operations which must be performed, or costs incurred, before beginning work on the project site. Payment for "Bond & Mobilization" shall be made using the following schedule: When the listed percentage of the original contract amount is earned, the percentage of the amount bid for "Bond & Mobilization" will be paid.

Total Contract Earned:	Bid Amount:
5%	25%
10%	50%
50%	100%

**SECTION 01 3000
ADMINISTRATIVE REQUIREMENTS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Preconstruction meeting.
- B. Progress meetings.
- C. Construction progress schedule.
- D. Submittals for review, information, and project closeout.
- E. Partial progress payments.
- F. Requests for Interpretation (RFI) procedures.
- G. Submittal procedures.

1.2 PROJECT COORDINATION

- A. Project Coordinator: Owner.
- B. Construction Coordinator: General Contractor
- C. Owner's Representative: Architect, Civil Engineer, Structural Engineer, Electrical Engineer, Mechanical Engineer, Geo-technical Engineer, or Landscape Architect, etc. (as appropriate to the scope of work).
- D. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for construction access, traffic, and parking facilities.
- E. During construction, coordinate use of site and facilities through the Project Coordinator.
- F. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
- G. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.
- H. Coordinate construction staking and layout of work under instructions of the Project Coordinator, Owner, or Owner's Representative(s).
- I. Make the following types of submittals to the Project Coordinator. The Project Coordinator is responsible for distribution of submittals to the Owner and the Owner's Representative(s).
 - 1. Requests for Information (RFIs).
 - 2. Requests for substitution (Approved Equal).
 - 3. Shop drawings, product data, and samples.
 - 4. Test and inspection reports.
 - 5. Design data.
 - 6. Manufacturer's instructions and field reports.
 - 7. Applications for payment and change order requests.
 - 8. Progress schedules.
 - 9. Coordination drawings.
 - 10. Correction Punch List and Final Correction Punch List for Substantial Completion.
 - 11. Closeout submittals.
 - a. Record Drawings.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PRECONSTRUCTION MEETING

- A. Project Coordinator will schedule a meeting after Notice of Award; if deemed necessary.
- B. Attendance Required:
 - 1. Owner.
 - 2. Owner's Representative(s) - if necessary
 - 3. Contractor.
 - a. Job Superintendent.
- C. Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
 - 5. Designation of personnel representing the parties to Contract.
 - 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, funding sources, proposal request, Change Orders, and Contract closeout procedures.
 - 7. Scheduling.
 - 8. Coordination.
 - a. Stored Materials
 - b. Utility Services
 - c. Site Visit
 - d. Laydown Area
 - 9. Scheduling activities of Testing Agency.
- D. Project Coordinator to record minutes and distribute electronic copies within two days after meeting to participants, with electronic copy to Project Coordinator, Owner, Owner's Representative(s), contractor, participants, and those affected by decisions made.

3.2 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work as deemed necessary by the Owner and/or Owner's Representative.
- B. Contractor will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
- C. Attendance Required:
 - 1. Contractor.
 - 2. Owner.
 - 3. Owner's Representative(s) - as necessary
 - 4. Contractor's superintendent.
 - 5. Major subcontractors.
- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems that impede, or will impede, planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of off-site fabrication and delivery schedules.
 - 7. Maintenance of progress schedule.
 - 8. Corrective measures to regain projected schedules.
 - 9. Planned progress during succeeding work period.
 - 10. Coordination of projected progress.
 - 11. Maintenance of quality and work standards.
 - 12. Effect of proposed changes on progress schedule and coordination.

13. Other business relating to work.
- E. Contractor shall record minutes and distribute copies within two days after meeting to participants, with electronic copy to Project Coordinator, Owner, Owner's Representatives, participants, and those affected by decisions made (Engineer, Utility Company, City, etc.).

3.3 CONSTRUCTION PROGRESS SCHEDULE

- A. 10 days prior to Pre-Construction Meeting, submit schedule defining planned operations for the first 30 days of Work, with a general outline for remainder of Work.
- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
 1. Include written certification that major contractors have reviewed and accepted proposed schedule.
- D. Within 10 days after joint review, submit complete schedule.
- E. Submit updated schedule every 30 days or monthly.

3.4 SUBMITTALS FOR REVIEW

- A. When the following are specified in individual sections, submit them for review:
 1. Product data.
 2. Product samples.
 3. Shop drawings.
- B. After Contractor has reviewed and approved, submit to Project Coordinator for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- C. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7000 - Execution and Closeout Requirements and Section 01 7800 - Closeout Submittals.

3.5 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:
 1. Design data.
 2. Certificates.
 3. Test reports.
 4. Inspection reports.
 5. Manufacturer's instructions.
 6. Manufacturer's field reports.
 7. Other types indicated.

3.6 PARTIAL PROGRESS PAYMENTS

- A. In accordance with 00 0700 - Standard General Conditions of the Construction Contract and 00 0800 - Supplementary Conditions to Standard General Conditions of the Construction Contract, otherwise as agreed upon prior to construction.

3.7 SUBMITTALS FOR PROJECT CLOSEOUT

- A. Submit Correction Punch List for Substantial Completion.
- B. Submit Final Correction Punch List for Substantial Completion.

- C. When the following are specified in individual sections, submit them at project closeout in conformance to requirements of Section 01 7000 - Execution and Closeout Requirements:
 - 1. Project record documents.
 - 2. Operation and maintenance data.
 - 3. Warranties.
 - 4. Bonds.
 - 5. Other types as indicated.

3.8 SUBMITTAL PROCEDURES

- A. General Requirements:
 - 1. Use a single transmittal for related items.
 - 2. When revised for resubmission, identify all changes made since previous submission.
- B. Shop Drawing Procedures:
 - 1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
 - 2. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.
- C. Transmit each submittal with a copy of approved submittal form to the Project Coordinator.
 - 1. Product data and shop drawings: transmit electronically in PDF format via email.
- D. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
- E. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
- F. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- G. Schedule submittals to expedite the Project, and coordinate submission of related items.
- H. For each submittal for review, allow 21 days excluding delivery time to and from the Contractor.
- I. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
- J. Provide space for Contractor and Owner's Representative(s) review.
- K. When revised for resubmission, identify all changes made since previous submission.
- L. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- M. Submittals not requested will not be recognized or processed.

PART 4 MEASUREMENT AND PAYMENT

- 4.1 ALL WORK DESCRIBED HEREIN IS INCIDENTAL TO OTHER RELATED ITEMS OF WORK. NO MEASUREMENT OR ADDITIONAL PAYMENT WILL BE CONSIDERED.
END OF SECTION**

**SECTION 01 4000
QUALITY REQUIREMENTS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittals.
- B. Quality assurance.
- C. References and standards.
- D. Inspection agencies and services.
- E. Control of installation.
- F. Tolerances.
- G. Defect Assessment.

1.2 RELATED REQUIREMENTS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements.
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements.

1.3 REFERENCE STANDARDS

- A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008 (Reapproved 2023).
- B. ASTM C1077 - Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation; 2017.
- C. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry; 2023.
- D. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2023.
- E. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2023.
- F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2021.

1.4 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Test Reports: After each test/inspection, promptly submit one electronic copy of report to Project Coordinator, Contractor, Owner, and Owner's Representative.
 - 1. Include:
 - a. Date issued.
 - b. Project title and number.
 - c. Name, address and telephone number of testing agency.
 - d. Name of inspector.
 - e. Date and time of sampling or inspection.
 - f. Identification of product and specifications section.
 - g. Location in the Project.
 - h. Type of test/inspection.
 - i. Date of test/inspection.
 - j. Results of test/inspection.
 - k. Compliance with Contract Documents.

- I. When requested by Project Coordinator or Owner's Representative(s), provide interpretation of results.
- 2. Test report submittals are for Project Coordinator's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.
- C. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Project Coordinator, then to Owner & Owner's Representative, in quantities specified for Product Data.
 - 1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
 - 2. Certificates may be recent or previous test results on material or product, but must be acceptable to Owner's Representative.
- D. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications:
 - 1. Prior to start of Work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.

1.6 TESTING AND INSPECTION AGENCIES AND SERVICES

- A. Contractor shall employ and pay for services of an independent testing agency to perform specified testing.
- B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- C. Contractor Employed Agency:
 - 1. Testing agency: Comply with requirements of ASTM E329, ASTM E543, ASTM C1021, ASTM C1077, ASTM C1093, and ASTM D3740.
 - 2. Laboratory: Authorized to operate in the State in which the Project is located.
 - 3. Laboratory Staff: Maintain a full time registered Engineer on staff to review services.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Project Coordinator, then Owner's Representative before proceeding.
- D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

- E. Have work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.2 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Project Coordinator, then Owner's Representative before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

3.3 TESTING AND INSPECTION

- A. Testing Agency Duties:
 - 1. Provide qualified personnel at site. Cooperate with Project Coordinator and Contractor in performance of services.
 - 2. Perform specified sampling and testing of products in accordance with specified standards.
 - 3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 4. Promptly notify Project Coordinator and Contractor of observed irregularities or non-conformance of Work or products.
 - 5. Perform additional tests and inspections required by Project Coordinator or Owner's Representative.
 - 6. Submit reports of all tests/inspections specified.
- B. Limits on Testing/Inspection Agency Authority:
 - 1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Agency may not approve or accept any portion of the Work.
 - 3. Agency may not assume any duties of Contractor.
 - 4. Agency has no authority to stop the Work.
- C. Contractor Responsibilities:
 - 1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
 - 2. Cooperate with laboratory personnel, and provide access to the Work .
 - 3. Provide incidental labor and facilities:
 - a. To provide access to Work to be tested/inspected.
 - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
 - c. To facilitate tests/inspections.
 - d. To provide storage and curing of test samples.
 - 4. Notify Project Coordinator and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
 - 5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
 - 6. Make arrangements with the independent testing laboratory employed by the Owner to obtain and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

- D. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Project Coordinator or Owner's Representative.
- E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.4 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not complying with specified requirements.
- B. If, in the opinion of Project Coordinator, it is not practical to remove and replace the Work, Owner will direct an appropriate remedy or adjust payment.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Materials Testing will not be measured.

4.2 PAYMENT

- A. Payment for Materials Testing shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. Partial payment shall be made in accordance with the percentage of work completed on the date of the partial payment estimate. Payment will not be made until 10-percent of the construction has been completed.

END OF SECTION

**SECTION 01 5500
VEHICULAR ACCESS AND PARKING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Construction Traffic Control
- B. Access roads.
- C. Parking.
- D. Haul routes.
- E. Maintenance.
- F. Removal, repair.

1.2 REFERENCES

- A. Manual of Uniform Traffic Control Devices, (MUTCD), latest edition.
- B. ND Department of Transportation (NDDOT) - Standard Specifications for Road and Bridge Construction, Section 704.

1.3 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Submit a Traffic Control Plan for Project Coordinator and governing authority review and approval at the Pre-Construction Conference. If no Pre-Construction Conference is held, Traffic Control Plan shall be submitted prior to site mobilization.

1.4 QUALIFICATIONS

- A. Provide a qualified traffic maintenance person with the following minimum qualifications:
 - 1. Be familiar with the requirements and importance of maintaining safe and smooth traffic flows.
 - 2. Have previous experience working with maintenance and protection of traffic.
 - 3. Be competent to supervise personnel in traffic maintenance operations.

1.5 RELATED REQUIREMENTS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements.
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Use only traffic control devices manufactured from materials that are durable, lightweight, rigid and visible, but do not create a hazard when struck.
- B. All traffic control devices used shall comply with applicable provisions of the MUTCD, latest edition.

2.2 ACCESSORIES

- A. Barricades: Type III, clear, well maintained and properly marked or lighted for nighttime use.
- B. Signs: Utilize signs with messages appropriate to provide adequate construction control. Signs and sign mountings shall conform to Section 704 of the NDDOT Standard Specifications for Road and Bridge Construction, current edition.

- C. Lights, delineators and reflectors: Red, yellow or white in color with no less than 12 square inches of reflective area per unit.
- D. Delineator Drums: Drums shall be approximately 36 inches in height and minimum of 18 inches in diameter at the top. They shall be constructed of durable plastic with horizontal, circumferential, orange and white reflectorized stripes. The reflectorized stripes shall be fabricated from Type III C, Type IV, or Wide Angle Prismatic flexible reflective sheeting. Delineator drums shall be weighted with sand placed at the bottom of the drum or constructed so that they cannot be blown over or displaced by wind or passing traffic, and do not create a hazard if accidentally struck.
- E. Traffic Cones: The cones shall be orange in color, shall be a minimum of 28 inches in height with a broadened base, and fabricated from materials that withstand impact. For nighttime use, cones shall have a minimum 6 inch wide white flexible reflectorized band placed a minimum of 3 inches, but not more than 4 inches, from the top. An additional 4 inch white reflectorized band shall be placed a minimum of 2 inches below the 6 inch band. The cones shall be weighted at the base to prevent overturning by wind. The reflectorized band shall be fabricated from Type III C, Type IV or Wide Angle Prismatic flexible reflective sheeting.

PART 3 EXECUTION

3.1 SCHEDULING AND COORDINATION

- A. Prior to commencing work, develop and agree to a detailed schedule between the Owner, Owner's Representative, Project Coordinator, Utility Companies, the Contractor and Subcontractor(s).
- B. Before any detour or temporary route is opened to traffic, all necessary Temporary Traffic Control (TTC) devices shall be in place.
- C. Schedule work to reopen a closed intersection in the most expedient manner. Any public road closures shall be approved by the governmental authority having jurisdiction.
- D. Provide access to all residential dwellings and businesses adjacent to this project.

3.2 PREPARATION

- A. Provide, erect and place all required traffic control devices in the appropriate locations prior to beginning any construction activity.

3.3 ACCESS ROADS

- A. Contractor shall utilize only those roads designated as access roads by the governing authority having jurisdiction for access to the project site.
- B. Tracked vehicles not allowed on paved areas.
- C. Contractor is responsible for preventing material tracking onto adjacent roadways and parking lot which may include installation of a vehicle tracking pad.
- D. Extend and relocate as work progress requires, provide detours as necessary for unimpeded traffic flow.
- E. Provide unimpeded access for emergency vehicles. Maintain 20 foot width driveways with turning space between and around combustible materials.
- F. Provide and maintain access to fire hydrants free of obstructions.

3.4 PARKING

- A. Arrange for temporary parking areas to accommodate use of construction personnel.
- B. Construction may utilize those portions of the existing facilities designated by the Owner for access and parking.

3.5 HAUL ROUTES

- A. Confine construction traffic to designated haul routes.
- B. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

3.6 MAINTENANCE

- A. Contractor shall provide a traffic control watchperson to monitor and inspect all traffic control devices daily. Watchperson shall provide daily logs of inspections to the Project Coordinator, Owner, and Owner's Representative.
- B. Maintain traffic and parking areas in a sound condition free of excavated material, construction equipment, products, mud, snow, and ice.
- C. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water and other deficiencies resulting from construction activities or Contractor's use to pre-construction conditions.
- D. When the Project Coordinator notifies the Contractor of the need for traffic control devices to be furnished, installed, relocated, maintained, removed, or otherwise revised, the Contractor must be on the project addressing the issue within one hour of the notification. Owner or Project Coordinator may apply a contract price reduction of \$1,000 per day if the issue is not addressed within one hour.

3.7 REMOVAL, REPAIR

- A. Repair existing facilities damaged by use, to original condition.
- B. Repair damage caused by installation.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Items as required within the plans and traffic control details.
- B. If traffic control is bid by the unit, EACH, on the bid form, EACH unit is defined as listed in "A" above within the plans and traffic control details.
- C. If traffic control is bid as a Lump Sum on the bid form, the amount bid must include the appropriate number of units as defined in "A" above within the plans and traffic control details to properly complete the project.

4.2 PAYMENT

- A. Include all costs associated with the requirements listed herein in the lump sum price bid for traffic control.
- B. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment, and materials.
- C. If no bid item is provided, payment will be incidental to other related items of work.

END OF SECTION

**SECTION 01 5713
EROSION AND SEDIMENT CONTROL**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Prevention of erosion due to construction activities.
- B. Prevention of sedimentation of waterways, open drainage ways, and storm and sanitary sewers due to construction activities.
- C. Restoration of areas eroded due to insufficient preventive measures.
- D. Permanent erosion control.
- E. Compensation of Owner for fines levied by authorities having jurisdiction due to non-compliance by Contractor.

1.2 RELATED REQUIREMENTS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements.
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements.
 - 1. Architect, Landscape Architect, Civil Engineer, Structural Engineer, Electrical Engineer, Mechanical Engineer, Geotechnical Engineer, etc., as applicable for the scope of work.
- C. Section 31 2200 - Grading: Temporary and permanent grade changes for erosion control.
- D. Section 32 1313 - Concrete Paving: Concrete for temporary and permanent erosion control structures indicated on drawings
- E. Section 32 9219 - Seeding: Permanent turf for erosion control and soil stabilization.

1.3 REFERENCE STANDARDS

- A. ASTM D792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement; 2013.
- B. ASTM D1388 - Standard Test Method for Stiffness of Fabrics; 2014.
- C. ASTM D4355/D4355M - Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc-Type Apparatus; 2021.
- D. ASTM D4533/D4533M - Standard Test Method for Trapezoid Tearing Strength of Geotextiles; 2015 (Reapproved 2023).
- E. ASTM D4595 - Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method; 2011.
- F. ASTM D4632/D4632M - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles; 2015a (Reapproved 2023).
- G. ASTM D4873/D4873M - Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples; 2017 (Reapproved 2021).
- H. ASTM D6460 - Standard Test Method for Determination of Rolled Erosion Control Product (RECP) Performance in Protecting Earthen Channels from Stormwater-Induced Erosion; 2012.
- I. ASTM D6524 - Standard Test Method for Measuring the Resiliency of Turf Reinforcement Mats (TRMs); 2000 (Reapproved 2011).
- J. ASTM D6525/D6525M - Standard Test Method for Measuring Nominal Thickness of Rolled Erosion Control Products; 2014.

- K. ASTM D6566 - Standard Test Method for Measuring Mass per Unit Area of Turf Reinforcement Mats; 2014.
- L. ASTM D6567 - Standard Test Method for Measuring the Light Penetration of a Turf Reinforcement Mat (TRM); 2014.
- M. ASTM D6575 - Standard Test Method for Determining Stiffness of Geosynthetics Used as Turf Reinforcement Mats (TRMs); 2014a.
- N. ASTM D6818 - Standard Test Method for Ultimate Tensile Properties of Rolled Erosion Control Products; 2014.
- O. ASTM D7322 - Standard Test Method for Determination of Rolled Erosion Control Product (RECP) Ability to Encourage Seed Germination and Plant Growth Under Bench-Scale Conditions; 2013.
- P. EPA (NPDES) - National Pollutant Discharge Elimination System (NPDES), Construction General Permit; Current Edition.
- Q. FHWA FLP-94-005 - Best Management Practices for Erosion and Sediment Control; 1995.

1.4 PERFORMANCE REQUIREMENTS

- A. Develop and follow a Storm Water Pollution Prevention Plan (SWPPP) and submit periodic inspection reports.
- B. Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained; furnish all documentation required to obtain applicable permits.
 - 1. Obtain and pay for permits:
 - a. Construction General Permit from the North Dakota Department of Environmental Quality.
 - b. Local permits as required by jurisdiction.
 - 2. Contractor shall be responsible for payment of any fines resulting from non-compliance with the applicable regulations and/or permit(s). If Owner pays for assessed fines due to Contractor failure or refusal to pay for assessed fines, Owner will withhold payment to Contractor an amount equivalent to the fines paid by Owner.
- C. Timing: Put preventive measures in place as soon as possible after disturbance of surface cover and before precipitation occurs.
- D. Storm Water Runoff: Control increased storm water runoff due to disturbance of surface cover due to construction activities for this project.
 - 1. Prevent runoff of sediment-laden water into storm and sanitary sewer systems, including open drainage channels, in excess of actual capacity or amount allowed by authorities having jurisdiction, whichever is less.
- E. Erosion On Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.
 - 1. Control movement of sediment and soil from temporary stockpiles of soil.
 - 2. Prevent development of ruts due to equipment and vehicular traffic.
 - 3. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.
- F. Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.
 - 1. Prevent windblown soil from leaving the project site.
 - 2. Prevent tracking of mud onto public roads outside site.
 - 3. Prevent mud and sediment from flowing onto sidewalks and pavements.

4. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.
- G. Sedimentation of Waterways On Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
 1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
 2. If sediment basins are used as temporary preventive measures, pump dry and remove deposited sediment after each storm.
- H. Sedimentation of Waterways Off Site: Prevent sedimentation of waterways off the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
 1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
- I. Open Water: Prevent standing water that could become stagnant.
- J. Maintenance: Maintain temporary preventive measures until permanent measures have been established.

1.5 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Storm Water Pollution Prevention Plan (SWPPP):
 1. Submit not less than 30 days prior to anticipated start of clearing, grading, or other work involving disturbance of ground surface cover.
 2. Obtain the approval of the Plan by authorities having jurisdiction.
 3. Obtain the approval of the Plan by Owner.
- C. Inspection Reports: Submit report of each inspection; identify each preventive measure, indicate condition, and specify maintenance or repair required and accomplished.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Grass Seed For Temporary Cover: Select a species appropriate to climate, planting season, and intended purpose. If same area will later be planted with permanent vegetation, do not use species known to be excessively competitive or prone to volunteer in subsequent seasons.
- B. Fiber Rolls (Straw Wattles):
 1. 12 inch, Flaxtech straw wattles, North American Green WS12, AEC Premier Straw Wattles, or approved equal.
 2. 12 inch has a minimum weight of 2 lbs/ft.
- C. Silt Fence:
 1. Where required by the local municipality having jurisdiction, where indicated on the plans, or where required at critical areas, silt fence shall be installed with a backing of steel woven wire fence. Woven wire fabric shall conform to ASTM A116 with a Class 1 zinc coating. Woven wire fabric shall be at least 32 inches wide with a maximum opening size of 6 inches x 6 inches.
 2. Fabric: Polypropylene geotextile conforming to ASTM D4439, resistant to common soil chemicals, mildew, and insects; non-biodegradable; with a minimum roll width of 36 inches.
 3. Manufacturers:

- a. Propex Geosynthetics; GEOTEX 2130:
www.geotextile.com/#sle.
 - b. Or Approved Equal.
- D. Silt Fence Posts: Minimum 5 feet long.
 - 1. Wood posts: Treated, with minimum dimensions of 1-1/2 inches by 1-1/2 inches for square posts, or 2 inch diameter for round posts.
 - 2. Steel T Posts: 0.95 lb/ft minimum with projections for fastening wire or fabric, and a metal plate welded near bottom.
- E. Inlet Protection: Polypropylene inlet filter bag with a minimum flow rate of 145 gallons per minute per square foot, and designed for a minimum silt and debris capacity of 2 cubic feet.
 - 1. Flexstorm Inlet Filter manufactured by Inlet & Pipe Protection, Inc. or approved equivalent.
- F. Erosion Control Blanket and Turf Reinforcement Mat
 - 1. Erosion Control Blanket and Turf Reinforcement Mat shall conform to Section 856 of the NDDOT Standard Specifications, current edition.
 - 2. All Erosion Control Blanket netting shall be jute or other biodegradable natural fiber. Photodegradable and polypropylene materials are not acceptable.
 - 3. Erosion Control Blanket type 2 shall be North American Green S150BN, or approved equivalent.
 - 4. Erosion Control Blanket type 4 shall be North American Green C125BN, SC150BN, or approved equivalent.
 - 5. Turf Reinforcement mat shall be North American Green P300, or approved equivalent.
- G. Concrete Slope Protection:
 - 1. Concrete: See Section 32 1313.
 - 2. Riprap: Angular shaped stone 6 inch minimum size, 12 inch maximum size; solid and nonfriable; free of deleterious material; not composed of sandstone, shale, or soft limestone, and not easily abraded or crushed.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

3.2 PREPARATION

- A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.

3.3 SCOPE OF PREVENTIVE MEASURES

- A. In all cases, if permanent erosion resistant measures have been installed, temporary preventive measures are not required.
- B. Construction Entrances: Traffic-bearing aggregate surface.
 - 1. Width: As required; 20 feet, minimum.
 - 2. Length: 50 feet, minimum.
 - 3. Provide at each construction entrance from public right-of-way.
 - 4. Where necessary to prevent tracking of mud onto right-of-way, provide wheel washing area out of direct traffic lane, with drain into sediment trap or basin.
- C. Linear Sediment Barriers: Made of silt fences or fiber rolls.
 - 1. Provide linear sediment barriers:
 - a. Along downhill perimeter edge of disturbed areas, including soil stockpiles.

- b. Along the toe of cut slopes and fill slopes.
- 2. Space sediment barriers with the following maximum slope length upslope from barrier:
 - a. Slope of Less Than 2 Percent: 100 feet.
 - b. Slope Between 2 and 5 Percent: 75 feet.
 - c. Slope Between 5 and 10 Percent: 50 feet.
 - d. Slope Between 10 and 20 Percent: 25 feet.
 - e. Slope Over 20 Percent: 15 feet.
- D. Inlet Protection: Installed in locations delineated on the plans.
- E. Temporary Splash Pads: Stone aggregate over filter fabric; size to suit application; provide at downspout outlets and storm water outlets.
- F. Soil Stockpiles: Protect using perimeter silt fence.
- G. Temporary Seeding: Use in areas not being developed or planned to be developed for a period greater than 14 days.
- H. Permanent turf reinforcement mats or temporary erosion control: Install where required or where indicated on plans.
- I. Concrete slope protection: Install where required or where indicated on plans.

3.4 INSTALLATION

- A. Traffic-Bearing Aggregate Surface at Construction Entrances:
 - 1. Excavate minimum of 6 inches.
 - 2. Place geotextile fabric full width and length, with minimum 12 inch overlap at joints.
 - 3. Place and compact at least 6 inches of 2 to 4 inch diameter washed stone.
- B. Silt Fences:
 - 1. Store and handle fabric in accordance with ASTM D4873/D4873M.
 - 2. Silt fence shall either be installed in a 4 inch deep by 6 inch wide trench on the upslope side of the fence, or be machine sliced in with a 4 inch fabric embedment. If utilizing trench method, trench shall be backfilled and compacted. Top of fabric shall be at a minimum 32 inch nominal height.
 - 3. Steel posts shall be installed at a maximum 4 foot spacing, wood posts shall be installed at a maximum of 4 foot spacing. All posts shall be install with a minimum embedment of 24 inches.
 - 4. Do not splice fabric width; minimize splices in fabric length; splice at post only, overlapping at least 18 inches, with extra post.
 - 5. Wherever runoff will flow around end of barrier or over the top, provide temporary splash pad or other outlet protection; at such outlets in the run of the barrier, make barrier not more than 12 inches high with post spacing not more than 4 feet.
- C. Fiber Rolls:
 - 1. Install in fiber roll sections with roll ends overlapping 1 foot or greater when installed perpendicular to a slope.
 - 2. When placed parallel to a slope, turn downhill end of fiber roll uphill to create a "J" or hook shape. The short end of the "J" shall be 4' long (minimum). The uphill end of the fiber roll shall abut the subsequent uphill fiber roll section.
 - 3. Install so that bindings are not in contact with the ground.
 - 4. Embed at least 3 inches in the ground.
 - 5. Install anchor at least every 4 feet.
 - 6. Place soil excavated for trench against bales on the upslope side of the row, compacted.
- D. Erosion Control Blankets:

1. Install where indicated in plans or as needed, in accordance with manufacturer's recommendations.
- E. Concrete Slope Protection:
1. Remove vegetation and deleterious materials. Compact all loose material.
 2. Wet surfaces before placing concrete. Do not place concrete on soft subgrade or in standing water.
 3. Place and consolidate 6 inch concrete using methods that prevent segregation and sagging.
 4. Embed riprap in concrete with 6 inches to 12 inches of spacing between stones at alternating patterns. Provide a minimum clear space of 2 inches at the bottom of the concrete.
- F. Inlet Protection:
1. Install where indicated in plans or as needed, in accordance with manufacturer's recommendations.
- G. Temporary Seeding:
1. When hydraulic seeder is used, seedbed preparation is not required.
 2. When surface soil has been sealed by rainfall or consists of smooth undisturbed cut slopes, and conventional or manual seeding is to be used, prepare seedbed by scarifying sufficiently to allow seed to lodge and germinate.
 3. Apply seed uniformly; if using drill or cultipacker seeders place seed 1/2 to 1 inch deep.
 4. Irrigate as required to thoroughly wet soil to depth that will ensure germination, without causing runoff or erosion.
 5. Repeat irrigation as required until grass is established.
- H. Permanent Turf reinforcement mats:
1. Install where indicated in plans, in accordance with manufacturer's recommendations.

3.5 MAINTENANCE

- A. Inspect preventive measures weekly, within 24 hours after the end of any storm that produces 0.25 inches or more rainfall at the project site, and daily during prolonged rainfall.
- B. Repair deficiencies immediately.
- C. Silt Fences:
 1. Promptly replace fabric that deteriorates unless need for fence has passed.
 2. Remove silt deposits that exceed one-third of the height of the fence.
 3. Repair fences that are undercut by runoff or otherwise damaged, whether by runoff or other causes.
- D. Fiber Rolls:
 1. Promptly replace rolls that fall apart or otherwise deteriorate unless need has passed.
 2. Remove silt deposits that exceed one-half of the height of the rolls.
 3. Repair rows that are undercut by runoff or otherwise damaged, whether by runoff or other causes.
- E. Clean out temporary sediment control structures weekly and relocate soil on site.
- F. Place sediment in appropriate locations on site; do not remove from site.
- G. Maintain permanent turf reinforcement mats until vegetation has been established.
- H. When Project Coordinator, Owner, or Owner's Representative notifies the Contractor that the erosion control measures (BMP's) are not in compliance with

the SWPPP, the Contractor shall have 4 hours to address the situation. Project Coordinator or Owner may apply a contract price reduction of \$1,000 per day until the issue is resolved.

- I. Contractor is responsible for payment of any fines, fees, or other financial penalties imposed by any governmental agency for Contractor's failure to comply with the terms of the SWPPP.

3.6 CLEAN UP

- A. Remove temporary measures after permanent measures have been installed, unless permitted to remain by Owner.
- B. Clean out temporary sediment control structures that are to remain as permanent measures.
- C. Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.
- D. Comply with all SWPPP requirements relative to protection removal.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, Engineer will make measurement in accordance with each specific bid item. For lump sum (LS) bid items, measurements will not be made.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 01 6000
PRODUCT REQUIREMENTS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. General product requirements.
- B. Re-use of existing products.
- C. Transportation, handling, storage and protection.
- D. Product option requirements.
- E. Substitution limitations.

1.2 RELATED SECTIONS

- A. Instructions to Bidders: Product options and substitution procedures.
- B. Section 01 3000 - Administrative Requirements: Submittal procedures.
- C. Section 01 4000 - Quality Requirements: Product quality monitoring.
- D. Project Coordinator: Described in Section 01 3000 - Administrative Requirements.
- E. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements.

1.3 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal requirements and procedures.
- B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.1 EXISTING PRODUCTS

- A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by Contract Documents.
- B. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

2.2 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by Contract Documents.

2.3 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article.

PART 3 EXECUTION

3.1 SUBSTITUTION LIMITATIONS

- A. If provided, Section 00 0200 - Instructions to Bidders specifies time restrictions for submitting requests for Substitutions during the bidding period and the documents required. Any products approved during the bidding period will be identified by Addendum in writing.
- B. Substitutions may be considered when a Product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- D. A request for substitution constitutes a representation that the Contractor:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 - 2. Agrees to provide the same warranty for the substitution as for the specified product.
 - 3. Agrees to coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
- E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- F. Substitution Submittal Procedure:
 - 1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
 - 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
 - 3. The Project Coordinator will notify Contractor, or issue an addendum of decision to accept or reject request.

3.2 TRANSPORTATION AND HANDLING

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

3.3 STORAGE AND PROTECTION

- A. Store and protect products in accordance with manufacturers' instructions.
- B. Store with seals and labels intact and legible.

- C. Store sensitive and hazardous products in weather tight, climate controlled enclosures in an environment favorable to product.
- D. For exterior storage of fabricated products, place on sloped supports above ground.
- E. Provide off-site storage and protection when site does not permit on-site storage or protection.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- H. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- I. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- J. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

PART 4 MEASUREMENT AND PAYMENT

**4.1 ALL WORK DESCRIBED HEREIN IS INCIDENTAL TO OTHER RELATED ITEMS OF WORK. NO MEASUREMENT OR ADDITIONAL PAYMENT WILL BE CONSIDERED.
END OF SECTION**

**SECTION 01 7113
MOBILIZATION**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Contractor shall be responsible for all preparatory work and operations required prior to beginning work on the project and demobilization.
 - 1. Mobilization
 - 2. Demobilization
 - 3. Assembly and disassembly of equipment and plants
 - 4. Project incidentals

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 GENERAL

- A. Mobilization shall include, but not limited to, the following:
 - 1. Movement of personnel, tools, equipment, materials, supplies, and incidentals to the project site and all preparatory work.
 - 2. Establishment of all necessary facilities, including acquisition of easements for the Contractor's convenience.
 - 3. Obtaining permits necessary for the execution of the work.
 - 4. Upon completion of the work, the Contractor shall remove tools, equipment, and unused materials, supplies, debris, and waste from the project site and restore all disturbed areas outside the project area to their pre-construction condition.
- B. Refer to Section 02 4110 for disposal of waste materials.

1.4 SUBMITTALS

- A. Refer to Section 01 3000 - Administrative Requirements, for submittal procedures and requirements.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, Owner's Representative will make measurement in accordance with each specific bid item. For lump sum (LS) bid items, measurements will not be made.

4.2 PAYMENT

- A. Payment shall be made in accordance with the percentage of work completed to date of the partial payment estimate. Payment will not be made until 10-percent of the construction has been completed. The final 10-percent of the amount bid for mobilization will be withheld until all the final clean-up is complete.

END OF SECTION

**SECTION 01 7123.10
CONSTRUCTION STAKING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Construction staking services by Contractor

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 DESCRIPTION OF SERVICES

- A. Specific services listed in this section are in addition to, and do not supersede, general Execution and Closeout Requirements.
- B. Sole responsibility for establishing all locations, dimensions and levels of items of work.
- C. Sole responsibility for provision of all materials required to establish and maintain benchmarks and control points, including batter boards, grade stakes, structure elevation stakes, and other items.
- D. Provision of facilities and assistance necessary for Owner or Owner's Representative to check lines and grade points placed by Contractor.
- E. Preparation and maintenance of professional-quality, accurate, well organized, legible notes of all measurements and calculations made while surveying and laying out the work.

1.4 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Informational Submittals:
 - 1. When requested by Owner, Project Coordinator, or Owner's Representative:
 - a. Photo copies of survey and/or field notes
 - b. Survey coordinates of points staked by Contractor
 - c. Record Survey of field changes

1.5 QUALITY ASSURANCE

- A. Land Surveyor's Qualifications: If requested by Owner or Owner's Representative, submit evidence that the party/parties responsible for construction surveying are under the supervision of a Professional Land Surveyor licensed in the State in which the Project is located.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. Notify Owner or Owner's Representative of any discrepancies immediately in writing before proceeding to lay out the work. Locate and protect existing benchmarks and base line. Preserve permanent reference points during construction.

- B. Existing Utilities and Equipment: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify existing conditions.

3.2 CONSTRUCTION SURVEYING

- A. Perform surveying as applicable to specific items necessary for proper execution of work.
- B. Perform Record survey for all field changes.
- C. Record Log: Maintain a log of layout control work. Record any deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used.
- D. Use by the Owner, Project Coordinator, or Owner's Representative: The Owner, Project Coordinator, or Owner's Representative may at any time use line and grade points and markers established by the Contractor. The Contractor's surveys are a part of the work and may be checked by the Owner, Project Coordinator, or Owner's Representative at any time.

3.3 RECORDS

- A. Maintain at the Site a complete and accurate log of control and survey work as it progresses.
 - 1. Organize and record survey data in accordance with recognized professional surveying standards, Laws and Regulations, and prevailing standards of practice in the State in which the Project is located. Contractor is solely responsible for completeness and accuracy of survey work, and completeness and accuracy of survey records, including field books.

3.4 CLOSEOUT ACTIVITIES

- A. See Section 01 7000 - Execution and Closeout Requirements, for closeout procedures.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Construction Staking will not be measured.

4.2 PAYMENT

- A. Payment for Construction Staking shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. Partial payment shall be made in accordance with the percentage of staking work completed on the date of the partial payment estimate as determined by Owner's

END OF SECTION

**SECTION 01 7800
CLOSEOUT SUBMITTALS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Project record documents.
- B. Warranties and bonds.

1.2 RELATED REQUIREMENTS

- A. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- B. Individual Product Sections: Warranties required for specific products or Work.

1.3 SUBMITTALS

- A. Project Record Documents: Submit documents to Project Coordinator with claim for final Application for Payment.
- B. Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
 - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 2. Field changes of dimension and detail.
 - 3. Details not on original Contract drawings.

4. If As-built or Record drawings are prepared using Engineer's certified plan sheets, Engineer's stamp and signature shall be masked or covered prior to submitting to Project Coordinator.

3.2 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.
- E. Include photocopies of each in operation and maintenance manuals, indexed separately on Table of Contents.
- F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.

PART 4 MEASUREMENT AND PAYMENT

- 4.1 **ALL WORK DESCRIBED HEREIN IS INCIDENTAL TO OTHER RELATED ITEMS OF WORK. NO MEASUREMENT OR ADDITIONAL PAYMENT WILL BE CONSIDERED.
END OF SECTION**

**SECTION 02 4110
REMOVALS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Removal and disposal of concrete, asphalt and other pavement items.
- B. Removal of sanitary sewer and storm sewer manholes, inlets, and pipe.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 REFERENCE STANDARDS

- A. 29 CFR 1926 - Safety and Health Regulations for Construction; Current Edition.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

1.4 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Fill Material: As specified in Section 31 2323 - Fill.

PART 3 EXECUTION

3.1 SCOPE

- A. Remove paving and curbs as required to accomplish new work.
- B. Remove manholes and manhole covers, curb inlets and catch basins.
- C. Remove other items indicated, for salvage, relocation, and recycling.
- D. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as specified in Section 31 2323 - Fill.

3.2 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Use of explosives is not permitted.
 - 3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 4. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
 - 5. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 - 6. Do not close or obstruct roadways or sidewalks without permit.
 - 7. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.

8. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- B. Do not begin removal until receipt of notification to proceed from Owner.
- C. Protect existing structures and other elements that are not to be removed.
 1. Provide bracing and shoring.
 2. Prevent movement or settlement of adjacent structures.
 3. Stop work immediately if adjacent structures appear to be in danger.
- D. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.3 EXISTING UTILITIES

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
- E. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- F. Remove piping, manholes, and inlets designated for removal.

3.4 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.
- D. Dispose of materials at locations approved by state and local regulations.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 31 1000
SITE CLEARING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Clearing and protection of vegetation.
- B. Removal of surface debris.
- C. Removal of root systems.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 SITE CLEARING

- A. Comply with other requirements specified in Section 02 4110 - Removals.
- B. Lay out the work as shown on plans.
- C. Minimize production of dust due to clearing operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

3.2 EXISTING UTILITIES AND BUILT ELEMENTS

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Protect existing structures and other elements that are not to be removed.

3.3 VEGETATION

- A. Scope: Remove trees, shrubs, brush, and stumps in areas to be covered by building structure, paving, playing fields, lawns, and planting beds.
- B. Do not begin clearing until vegetation to be relocated has been removed.
- C. Do not remove or damage vegetation beyond the limits indicated on drawings.
- D. Install substantial, highly visible fences at least 3 feet high to prevent inadvertent damage to vegetation to remain:
 - 1. At vegetation removal limits.
 - 2. Around trees to remain within vegetation removal limits; locate no closer to tree than at the drip line.
 - 3. Around other vegetation to remain within vegetation removal limits.
- E. Vegetation Removed: Do not burn, bury, landfill, or leave on site, except as indicated.
 - 1. Chip, grind, crush, or shred vegetation for mulching, composting, or other purposes; preference should be given to on-site uses.
 - 2. Trees: Sell if marketable; if not, treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.
 - 3. Existing Stumps: Treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.

4. Sod: Re-use on site if possible; otherwise sell if marketable, and if not, treat as specified for other vegetation removed.
5. Fill holes left by removal of stumps and roots, using suitable fill material, with top surface neat in appearance and smooth enough not to constitute a hazard to pedestrians.
- F. Dead Wood: Remove all dead trees (standing or down), limbs, and dry brush on entire site; treat as specified for vegetation removed.
- G. Restoration: If vegetation outside removal limits or within specified protective fences is damaged or destroyed due to subsequent construction operations, replace at no cost to Owner.

3.4 WARRANTY

- A. Existing plant life to remain within 10 feet of the area being cleared shall be replaced by the Contractor if death or damage resulting from contact during construction occurs within 1-year after final acceptance by Owner. Warranty shall include all costs for materials and installation.

3.5 DEBRIS

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 31 2200
GRADING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Removal and storage of topsoil.
- B. Rough Grading procedures.
- C. Preparation and placement of topsoil for finish landscaping.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 RELATED REQUIREMENTS

- A. Section 01 5713 - Temporary Erosion and Sediment Control: Soil stockpile protection.
- B. Section 31 1000 - Site Clearing.
- C. Section 31 2316 - Excavation.
- D. Section 31 2316.13 - Trenching: Trenching and backfilling for utilities.
- E. Section 31 2323 - Fill: Filling and compaction.
- F. Section 32 9219 - Seeding: Finish ground cover.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Topsoil: Composed of loose, friable, loamy topsoil that is free of excess acid and alkali. Assure topsoil does not contain objectionable amounts of sod, tall grass, noxious weeds, roots, hard lumps, gravel, stones larger than described below, subsoil or other undesirable material which will prevent the formation of a suitable seeding, sodding or planting bed. Topsoil shall, prior to being stripped, have demonstrated ability to grow plants by the occurrence upon it of healthy crops, grass or other plant growth that is of good quality and that it is reasonably drained.
 - 1. Topsoil may be excavated on-site and designated for re-use or imported.
 - 2. Stones larger than 1 inch shall be removed from all areas to be finish graded.
 - 3. Acidity range (pH) of 5.5 to 7.5.
 - 4. Containing a minimum of 4 percent and a maximum of 20 percent inorganic matter.
 - 5. Provide soil test results of topsoil to be used on the project. Soil test shall provide information on nitrogen, phosphorus, potassium, pH, soluble salt, organic matter, and iron (Typical Lawn and Garden Package + Iron).
 - a. Soil Testing Labs
 - 1) **B&C AG Consultants**, 315 South 26th St., Billings, MT 59101, Ph. 406-259-5779, website: <http://bncag.com>.
 - 2) **DAKOTA Analytical, Inc.**, 833 Gateway Dr. NE, East Grand Forks, MN 56721, Ph. 701-735-4489, website: dakotalab.com
 - 3) **Energy Laboratories, Inc.**, PO Box 30916, Billings, MT 59107, Ph. 800-735-4489, 406-252-6325, website: eneregylab.com

- 4) **Maxim Technologies, Inc.**, 600 S. 25th St., PO Box 30615, Billings, MT 59107, Ph. 406-248-9161.
- 5) **NDSU Soil Testing Lab**, 1360 Bolley Drive, Fargo, ND 58102, PH. 701-231-8942.
- 6) Or otherwise Approved.
- b. Test result shall include a recommendation for soil amendments and fertilizers that may be needed to provide soil suitable for growing landscape trees, shrubs, and perennials.
- B. Other Fill Materials: See Section 31 2323 - Fill.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.
- B. Verify the absence of standing or ponding water.
- C. Prior to placing topsoil:
 - 1. Verify backfilling compaction is complete.
 - 2. Verify substrate base has been contoured and compacted.

3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.
- C. Locate, identify, and protect from damage above- and below-grade utilities to remain.
- D. Notify utility company to remove and relocate utilities.
- E. Provide temporary means and methods to remove all standing or ponding water from areas prior to grading.
- F. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.
- G. Protect trees to remain by providing substantial fencing around entire tree at the outer tips of its branches; no grading is to be performed inside this line.
- H. Protect plants, lawns, rock outcroppings, and other features to remain as a portion of final landscaping.
- I. Remove all existing asphalt, concrete, and other demolition items from the construction area and properly dispose at an approved disposal area. Aggregate surfacing removed shall be stockpiled for later reuse.

3.3 ROUGH GRADING

- A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.
- B. Do not remove topsoil when wet.
- C. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.
- D. Perform rough grading to obtain elevations shown on plans or as directed by the Owner's Representative.
- E. Areas shall be graded to provide positive drainage.
- F. Do not remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.
- G. When excavating through roots, perform work by hand and cut roots with sharp axe.

- H. See Section 31 2323 for filling procedures.
- I. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.
- J. The subgrade shall be maintained until permanent improvements are installed. Any damage due to inclement weather, contractor operations, or any other contractor/utility operations shall be repaired by the contractor at no expense to the contract.

3.4 SOIL REMOVAL

- A. Stockpile topsoil to be re-used on site; remove remainder from site.
- B. Stockpile subsoil to be re-used on site; remove remainder from site.

3.5 FINISH GRADING - SUBSTRATE PREPARATION AND TOPSOIL PLACEMENT

- A. Before Finish Grading:
 - 1. Verify building and trench backfilling have been compacted and tested.
 - 2. Verify subgrade has been contoured and compacted and tested.
- B. Remove debris, roots, and branches. Remove stones as specified in Part 2 of this Section. Remove soil contaminated with petroleum products.
- C. Where topsoil is to be placed, scarify surface to depth of 3 inches.
- D. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.
- E. Place topsoil in areas indicated to depth indicated on plans. Minimum topsoil replacement depth is 4 inches in grass areas and 18 inches in planting bed areas.
- F. Place topsoil where required to level finish grade.
- G. Place topsoil during dry weather.
- H. Remove roots, weeds, rocks, and foreign material while spreading.
- I. Near plants spread topsoil manually to prevent damage.
- J. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.
- K. Lightly compact placed topsoil to approximately 80% maximum dry density.
- L. Maintain stability of topsoil during inclement weather. Replace topsoil in areas where surface water has eroded thickness below specifications.

3.6 TOLERANCES

- A. Refer to Section 31 2323 - Fill.

3.7 REPAIR AND RESTORATION

- A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.
- B. Trees to Remain: If damaged due to this work, trim broken branches and repair bark wounds; if root damage has occurred, obtain instructions from Owner's Representative as to remedy.
- C. Other Existing Vegetation to Remain: If damaged due to this work, replace with vegetation of equivalent species and size.

3.8 FIELD QUALITY CONTROL

- A. See Section 31 2323 for compaction density testing.

3.9 CLEANING

- A. Remove unused stockpiled topsoil and subsoil. Grade stockpile area to prevent standing water.
- B. Leave site clean and raked, ready to receive permanent improvements.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 31 2316.13
TRENCHING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Trenching for utilities from 5' outside of buildings to utility main connections.
- B. Trenching for utility mains and service lines.
- C. Backfill of utility trenches.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 RELATED REQUIREMENTS

- A. Section 31 2200 - Grading: Rough grading procedures.
- B. Section 31 2200 - Grading: Topsoil removal and replacement.
- C. Section 31 2316 - Excavation: Building and foundation excavating.
- D. Section 31 2323 - Fill: Material classifications for utilities.
- E. Section 33 4211 - Stormwater Gravity Piping: Trench cuts.

1.4 DEFINITIONS

- A. Finish Grade and Utility Invert Elevations: Indicated on drawings.

1.5 REFERENCE STANDARDS

- A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses; 2017 (Reapproved 2021).
- B. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop; 2022, with Errata .
- C. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2019.
- D. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2012 (Reapproved 2021).
- E. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method; 2015, with Editorial Revision (2016).
- F. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)); 2012 (Reapproved 2021).
- G. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2015.
- H. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2017, with Editorial Revision (2020).
- I. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.
- J. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2017, with Editorial Revision (2018).

- K. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth); 2023.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.
- B. When fill materials need to be stored on site, locate stockpiles where indicated.
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. See Section 31 2323 for fill materials.

2.2 SOURCE QUALITY CONTROL

- A. Where fill materials are specified by reference to a specific standard, testing of samples for compliance shall be provided before delivery to site.
- B. If tests indicate materials do not meet specified requirements, change material and retest.
- C. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the work are as indicated.

3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.
- C. Locate, identify, and protect from damage above- and below-grade utilities to remain
- D. Notify utility company to remove and relocate utilities.
- E. Protect site features to remain including, but not limited to, bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- F. Protect plants, lawns, and other features to remain.
- G. Grade top perimeter of trenching area to prevent surface water from draining into trench. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by the Owner's Representative.
- H. Maintain and keep in good working order, all warning lights, barriers, signs and other traffic control devices as required for the safety of the public and maintenance of traffic.

3.3 TRENCHING

- A. Notify Project Coordinator or Owner's Representative of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- B. Remove all topsoil from area to be trenched.
- C. Do not interfere with 45 degree bearing splay of foundations.
- D. Cut trenches sufficiently wide to enable safe installation and allow for safe construction. Notify Project Coordinator or Owner's Representative if plan details

cannot be met or maintained. All excavation and trenching shall conform to current OSHA requirements and standards.

- E. Hand trim excavation for bell and spigot pipe joints and other appurtenant items. Remove or compact all loose soil under pipe to form firm bedding.
- F. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.
- G. Remove excavated material that is unsuitable for re-use from site.
- H. Stockpile excavated material to be re-used in area designated on site.
- I. Remove excess excavated material from site.
- J. Provide temporary means and methods, as required, to remove all water from trenching until directed by the Owner's Representative. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.
- K. Determine the prevailing groundwater level prior to trenching. If the proposed trench extends less than 1 foot (305 mm) into the prevailing groundwater, control groundwater intrusion with perimeter drains routed to sump pumps, or as directed by the Owner's Representative.

3.4 PREPARATION FOR UTILITY PLACEMENT

- A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill or, when directed by Project Coordinator or Owner's Representative, crushed rock.
- B. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
- C. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.
- D. Utility installation shall conform to the specific requirements of the pipe manufacturer for the type of pipe used, with respect to pipe bedding, backfill, and fill material.

3.5 BACKFILLING

- A. Backfill to contours and elevations indicated using unfrozen materials.
- B. Employ a placement method that does not disturb or damage other work.
- C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- D. Maintain optimum moisture content of fill materials to attain required compaction density. See Section 31 2323.
- E. Pipe Bedding - Fill Type 4a: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.
- F. General Fill - Fill Type 1: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth where heavy, self-propelled compaction equipment will be utilized, or 6 inches compacted depth where hand-guided equipment will be utilized.
- G. Slope grade away from buildings a minimum 12 inches in first 10 ft, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.
- H. Correct areas that are over-excavated.
- I. Relative Compaction Density shall be per Section 31 2323.
- J. Reshape and re-compact fills subjected to vehicular traffic.

3.6 BEDDING AND FILL AT SPECIFIC LOCATIONS

- A. Utility Piping:
 - 1. Bedding: Use Fill Type 4a.
 - 2. Cover with General Fill - Type 1.
 - 3. Compact in accordance with Section 31 2323 - Fill.

3.7 TOLERANCES

- A. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.
- B. Top Surface of Backfilling Under Paved Areas: Plus or minus 1/2 inch from required elevations.

3.8 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.
- B. Perform compaction density testing on compacted fill in accordance with ASTM D1556, ASTM D2167, or ASTM D6938.
- C. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D698 ("standard Proctor"). See Section 31 2323 for compaction requirements.
- D. If tests indicate work does not meet specified requirements, remove work, replace and retest. Contractor shall be responsible for all costs associated with additional testing required as a result of failed tests and/or substandard work.
- E. Frequency of Tests: See Section 31 2323.

3.9 CLEANING

- A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.
- B. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 31 2316
EXCAVATION**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Excavating for exterior slabs-on-grade and paving.
- B. Excavating for footings, interior slabs-on-grade, and site structures.
- C. Excavation and disposal of rocks.

1.2 DEFINITIONS

- A. Project Coordinator:
 - 1. Described in Section 01 3000 - Administrative Requirements.
- B. Owner's Representatives:
 - 1. Described in Section 01 3000 - Administrative Requirements.

1.3 RELATED REQUIREMENTS

- A. Section 01 5713 - Erosion and Sediment Control: Slope protection and erosion control.
- B. Section 31 2200 - Grading: Rough Grading Procedures.
- C. Section 31 2200 - Grading: Topsoil Removal and Replacement.
- D. Section 31 2316.13 - Trenching: Excavating for utility trenches outside the building to utility main connections.
- E. Section 31 2323 - Fill: Fill materials, backfilling, and compacting.

1.4 REFERENCE STANDARDS

- A. 29 CFR 1926 - Safety and Health Regulations for Construction; Current Edition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the work are as indicated.

3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.
- C. Locate, identify, and protect from damage above- and below-grade utilities to remain.
- D. Notify utility company to remove and relocate utilities.
- E. Protect site features to remain including, but not limited to, bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- F. Protect plants, lawns, and other features to remain.
- G. Grade top perimeter of excavation to prevent surface water from draining into excavation. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by Project Coordinator.
- H. Maintain and keep in good working order, all warning lights, barriers, signs and other traffic control devices as required for the safety of the public and maintenance of traffic.

3.3 EXCAVATING

- A. Underpin adjacent structures that could be damaged by excavating work.
- B. Excavate to accommodate new structures and construction operations.
- C. Notify Project Coordinator or Owner's Representative of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- D. Cut excavations sufficiently wide to enable safe installation and allow for safe construction. Notify Project Coordinator or Owner's Representative if plan details cannot be met or maintained. All excavation shall conform to current OSHA requirements and standards.
- E. Do not interfere with 45 degree bearing splay of foundations.
- F. Correct areas that are over-excavated and load-bearing surfaces that are disturbed; see Section 31 2323.
- G. Provide temporary means and methods, as required, to remove all water from excavations until directed by Project Coordinator or Owner's Representative. Remove and replace soils deemed suitable by classification and which are excessively moist due to lack of dewatering or surface water control.
- H. Determine the prevailing groundwater level prior to excavation. If the proposed excavation extends less than 1 foot (305 mm) into the prevailing groundwater, control groundwater intrusion with perimeter drains routed to sump pumps, or as directed by the Project Coordinator or Owner's Representative. If the proposed excavation extends more than 1 foot (305 mm) into the groundwater, control groundwater intrusion with a comprehensive dewatering procedures, or as directed by the Geotechnical Engineer.
- I. Remove excavated material that is unsuitable for re-use from site.
- J. Stockpile excavated material to be re-used in area designated on site in accordance with Section 31 2200.
- K. Remove excess excavated material from site.
- L. Rocks not reused onsite shall be removed from the property at the Contractor's expense.

3.4 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.
- B. Provide for visual inspection of load-bearing excavated surfaces by Project Coordinator before placement of foundations.

3.5 PROTECTION

- A. Divert surface flow from rains or water discharges from the excavation.
- B. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.
- C. Protect open excavations from rainfall, runoff, freezing groundwater, or excessive drying so as to maintain foundation subgrade in satisfactory, undisturbed condition.
- D. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.
- E. Keep excavations free of standing water and completely free of water during concrete placement.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Unless otherwise stated in the plans, excavated rock shall become property of the Contractor and be hauled offsite, incidental to Common Excavation.
- B. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- C. For lump sum (LS) bid items, measurements will not be made.
- D. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 31 2323
FILL**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Filling, backfilling, and compacting for footings, interior slabs-on-grade, and site structures.
- B. Backfilling and compacting for utilities.
- C. Subgrade preparation and base construction for paving.

1.2 DEFINITIONS

- A. Project Coordinator:
 - 1. Described in Section 01 3000 - Administrative Requirements.
- B. Owner's Representative(s):
 - 1. Described in Section 01 3000 - Administrative Requirements.

1.3 RELATED REQUIREMENTS

- A. Section 01 5713 - Erosion and Sediment Control: Slope protection and erosion control.
- B. Section 31 2200 - Grading: Topsoil removal and replacement.
- C. Section 31 2200 - Grading: Rough grading procedures.
- D. Section 31 2316 - Excavation: Removal and handling of soil to be re-used.
- E. Section 31 2316.13 - Trenching: Excavating for utility trenches outside the building to utility main connections.
- F. Section 32 1123 - Aggregate Base Courses: Base course installation beneath pavements.
- G. Section 33 4211-Stormwater Graviy Piping: Pipe Cover Material

1.4 REFERENCE STANDARDS

- A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses; 2017 (Reapproved 2021).
- B. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop; 2022, with Errata .
- C. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2019.
- D. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2012 (Reapproved 2021).
- E. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method; 2015, with Editorial Revision (2016).
- F. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)); 2012 (Reapproved 2021).
- G. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2015.
- H. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2017, with Editorial Revision (2020).

- I. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2017, with Editorial Revision (2018).
- J. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth); 2015.
- K. ASTM D6817/D6817M - Standard Specification for Rigid Cellular Polystyrene Geofoam; 2017 (Reapproved 2025).
- L. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth); 2023.
- M. ASTM D7557/D7557M - Standard Practice for Sampling of Expanded Polystyrene Geofoam Specimens; 2009 (Reapproved 2021).
- N. North Dakota Department of Transportation (NDDOT) - Standard Specifications for Road and Bridge Construction; Current Edition.

1.5 QUALITY ASSURANCE

- A. Designer Qualifications: Perform design of structural fill under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.
- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than ten years of documented experience.
- C. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.
- D. Copies of Documents at Project Site: Maintain at the project site a copy of each referenced document that prescribes execution requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.
- B. When fill materials need to be stored on site, locate stockpiles where designated.
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Fill materials shall conform to the requirements herein unless otherwise approved by the Geotechnical Engineer.
- B. General Fill- Fill Type 1A: Material excavated on site and approved for use as backfill by Project Coordinator or Owner's Representative.
 - 1. Sandy, graded and compactible material.
 - 2. Free of lumps larger than 3 inches, rocks larger than 2 inches, organics and debris.
 - 3. Fill material that is fat clay in nature shall not have a plastic limit less than 15%.
- C. Imported Fill - Fill Type 1B: Material imported from a location offsite and approved for use as backfill by Project Coordinator or Owner's representative.
 - 1. Matches the gradation and soil type of the existing on site soil or has the following qualities:
 - a. Sandy, graded and compactible material.
 - b. Free of lumps larger than 3 inches, rocks larger than 2 inches, organics and debris.

- c. Imported fill material that is fat clay in nature shall not have a plastic limit less than 15%.

D. Structural Fill - Fill Type 2: To be utilized as foundation fill or as indicated on the plans:

- 1. Non-frost susceptible Sand per the following gradation:

Sieve Size	Percent Passing
3/8"	100%
No. 4	95% - 100%
No. 16	45% - 80%
No. 50	10% - 30%
No. 100	0% - 10%
No. 200	0% - 5%

E. Aggregate Base - Fill Type 3: To be used as aggregate base under pavements per Section 32 1123.

- 1. Conforming to State of North Dakota Department of Transportation standard for Class 5 Aggregate Base.
- 2. Blended Base Course:
 - a. May contain up to 50% recycled bituminous and/or recycled concrete. Must contain 50% minimum Class 5 Aggregate.

b. Gradation:

Sieve Size	Percent Passing
1"	100%
3/4"	90% - 100%
No. 4	35% -85%
No. 30	16% - 50%
No. 200	0% - 12%

F. Pipe Bedding - Fill Type 4A

- 1. Utilize existing excavated, sandy soil that does not contain rocks or hard chunks larger than 1/2-inch, if available. If material is not available on site, provide sand from an outside source meeting the following gradation:

Sieve Size	Percent Passing
1/2"	100%
No. 4	60% - 85%
No. 200	0% -10%

- 2. Pipe bedding shall conform to and be installed per pipe manufacturers requirements.

G. Crushed Rock - Fill Type 4B

- 1. Utilize crushed rock under manholes and inlets or where the bottom of trenches or excavations is wet or otherwise unsuitable and cannot support loads or provide adequate pipe support, as determined by the Owner's Representative. Crushed Rock shall conform to the following gradation:

Sieve Size	Percent Passing
1-1/2"	100%

1"	95% - 100%
1/2"	25% - 60%
No. 4	0% - 10%
Fractured Faces	85%

- H. Topsoil: See Section 31 2200.
- I. Clay materials excavated on site and not defined above shall be utilized as approved by the Owner's Representative and in conformance with the recommendations provided by the Geotechnical Engineer.
- J. Aggregate Surface Course - Fill Type 8
 - 1. For installation in private roadways and parking lots.
 - a. Conforming to State of North Dakota Department of Transportation standard for Class 5 Aggregate Base.

2.2 SOURCE QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for general requirements for testing and analysis of soil material.
- B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.
- C. If tests indicate materials do not meet specified requirements, change material and retest.
- D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the Work are as indicated.
- B. Identify required lines, levels, contours, and datum.
- C. Verify areas to be filled are not compromised with surface or ground water.

3.2 SUBGRADE PREPARATION

- A. Scarify subgrade to a depth of 12 inches.
- B. Recompact with moisture and density control in accordance with Part 3.3 of this Section.
- C. The subgrade shall be recompacted by approved compaction equipment. The surface after compaction shall be true to line, grade, and cross section.
 - 1. Approved compaction equipment shall include sheepsfoot rollers, pneumatic packers, mechanical packers, mechanical rammers, vibratory equipment, trucks, tractors, scrapers, motor graders, and all other types of equipment used in excavating, transporting, and placing the subgrade.
 - 2. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- D. Proof roll subgrade to identify soft or yielding areas.
 - 1. Subgrade shall be proof-rolled by the Contractor using suitable equipment (such as a fully loaded water truck or fully loaded dump truck or a tractor-trailer combination), approved for this purpose by the Owner's Representative, before placing and/or spreading operations.
 - 2. Any ruts, soft yielding areas, or areas where subgrade cannot be adequately compacted shall be corrected at the Contractor's expense.

3. Cut out unsatisfactory subgrade areas. Backfill with general fill or other material as directed by Owner's Representative.
 4. Recompress corrected subgrade areas to moisture control and density equal to or greater than requirements for subsequent fill material and in accordance with Part 3.3 of this Section.
- E. Until ready to place aggregate base course, protect prepared subgrade from unnecessary vehicle traffic, moisture, and prevent loose soil from falling onto prepared subgrade.
- F. Verify installation of geotextile fabric and/or geo-grid where indicated on plans.

3.3 FILLING

- A. Fill to contours and elevations indicated using unfrozen materials.
- B. Employ a placement method that does not disturb or damage other work.
- C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- D. Maintain optimum moisture content of fill materials to attain required compaction density within the following ranges, unless otherwise noted or indicated on the plans or in a geotechnical evaluation:
1. Granular Soils: +/- 3 percent.
 2. Cohesive Soils Below Exterior Slabs & Pavements: 0 to +4 percent.
 3. Cohesive Soils Below Grassed Areas: 0 to +6 percent.
- E. Pipe Bedding: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth. Bedding dimensions shall be in accordance with the plans, or per manufacturers requirements.
- F. Lift Thickness: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth where heavy, self-propelled compaction equipment will be utilized, or 6 inches compacted depth where hand-guided equipment will be utilized.
- G. Slope grade away from building minimum 12 inches in first 10 ft unless noted otherwise. Make gradual grade changes. Blend slope into level areas.
- H. Relative Compaction Density shall be as follows per ASTM D698-Standard Proctor, unless otherwise noted or indicated on the plans or in a geotechnical evaluation:
1. Under foundations and floor slabs: minimum of 98% of maximum dry density.
 2. Under exterior slabs and pavement: minimum of 95% of maximum dry density.
 3. All other areas: minimum of 90% of maximum dry density.
- I. Reshape and re-compact fills subjected to vehicular traffic, or damaged or displaced due to construction operations.
- J. Maintain temporary means and methods, as required, to remove all water while fill is being placed as required, or until directed by the Owner's Representative. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

3.4 TOLERANCES

- A. Top Surface of General Filling: Plus or minus 1 inch from required elevations.
- B. Top Surface of Filling Under Paved Areas: Plus or minus 1/2 inch from required elevations.
- C. Top Surface of Aggregate Base under exterior slabs and pavements: Plus or minus 1/4 inch from required elevations.

- D. Top Surface of Aggregate Base under foundations and floor slabs: Plus or minus 1/4 inch from required elevations.

3.5 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.
- B. For delivered turf base stone and turf finish stone, perform a sieve analysis in accordance with ASTM C136 or ASTM C136M. Verify that the delivered stone gradation matches the approved shop submittal for turf stone fill materials.
- C. Perform compaction density testing on compacted fill in accordance with ASTM D1556, ASTM D2167, or ASTM D6938.
- D. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D698 ("standard Proctor").
- E. If tests indicate work does not meet specified requirements, remove work, replace and retest. Contractor shall be responsible for all costs associated with additional testing required as a result of failed tests and/or substandard work.
- F. Frequency of Tests, unless otherwise noted or indicated on the plans or in a geotechnical evaluation:
 - 1. Below Exterior Slabs & Pavement: Provide one passing density and moisture test per lift of fill per 750 square yards of area.
 - 2. Below Grass and Landscape Planting Areas: If directed by Owner's Representative proof roll only. Provide density and moisture tests only where directed by Owner's Representative.
 - 3. Utility Trenches: Provide one passing density and moisture test per 30 inches of backfill per 300 feet of trench, and no less than one passing density and moisture test per service line, or more as directed by Owner's Representative, at top of subgrade elevation.
 - 4. If a geotechnical evaluation has been prepared for the project, the recommendations of that evaluation shall govern.

3.6 CLEANING

- A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.
- B. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 32 1123
AGGREGATE BASE COURSES**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Aggregate base course: Preparation and installation.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 RELATED REQUIREMENTS

- A. Section 31 2200 - Grading: Preparation of site for base course.
- B. Section 31 2316.13 - Trenching: Compacted fill over utility trenches under base course.
- C. Section 31 2323 - Fill: Topsoil fill at areas adjacent to aggregate base course.
- D. Section 31 2323 - Fill: Compacted fill under base course.
- E. Section 32 1216 - Asphalt Paving: Finish and binder asphalt courses.
- F. Section 32 1313 - Concrete Paving: Finish concrete surface course.
- G. Section 33 0561 - Manholes and Structures: Manholes including frames.

1.4 REFERENCE STANDARDS

- A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses; 2017 (Reapproved 2021).
- B. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop; 2022, with Errata .
- C. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2019.
- D. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2012 (Reapproved 2021).
- E. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method; 2015, with Editorial Revision (2016).
- F. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)); 2012 (Reapproved 2021).
- G. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2015.
- H. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2017, with Editorial Revision (2020).
- I. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2017, with Editorial Revision (2018).
- J. North Dakota Department of Transportation (NDDOT) - Standard Specifications for Road and Bridge Construction, Current Edition.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.

- B. When storing aggregate materials on site:
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Aggregate Base, see Section 31 2323 - Fill.

2.2 SOURCE QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements for general requirements for testing and analysis of aggregate materials.
- B. Where aggregate materials are specified using ASTM D2487 classification, test and analyze samples for compliance before delivery to site.
- C. If tests indicate materials do not meet specified requirements, change material and retest.
- D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the work are as indicated.
- B. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.2 PREPARATION

- A. Prepare subgrade and proof roll in accordance with Section 31 2323 - Fill:
 - 1. If specified in the plans, Geotextile Fabric or Geo-Grid per Section 31 3721 - Geotextile Fabrics shall be installed above subgrade prior to placement of base course.
 - 2. Do not place aggregate on soft, muddy, or frozen surfaces.

3.3 INSTALLATION

- A. Except where specified elsewhere, maximum compacted lift depth of aggregate base layers shall be 6 inches.
- B. Level and contour surfaces to elevations and gradients indicated.
- C. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- D. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES

- A. Flatness: Maximum variation of 1/2 inch measured with 10 foot straight edge.
- B. Scheduled Compacted Thickness: Within 1/4 inch.
- C. Variation From Design Elevation: Within 1/4 inch.

3.5 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements for general requirements for field inspection and testing.

3.6 CLEANING

- A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

- B. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment, and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 32 1216
ASPHALT PAVING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Multiple course asphalt pavement - parking lot and roadways.

1.2 DEFINITIONS

- A. Project Coordinator:
 - 1. Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representative
 - 1. Described in Section 01 3000 - Administrative Requirements

1.3 REFERENCE STANDARDS

- A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses; 2017 (Reapproved 2021).
- B. AI MS-2 - Asphalt Mix Design Methods; 2015.
- C. AI (Asphalt Institute) MS-2 - Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types; The Asphalt Institute; current edition.
- D. AI MS-3 - Asphalt Plant Manual.
- E. AI MS-19 - Basic Asphalt Emulsion Manual; 2008.
- F. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2019.
- G. AI MS-22 - Principals of Construction of Hot Mix Asphalt Pavements.
- H. ASTM D946 - Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction; 2009a.
- I. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2017, with Editorial Revision (2020).
- J. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2017, with Editorial Revision (2018).
- K. ASTM D2041/D2041M - Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures; 2011.
- L. ASTM D2950/D2950M - Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods; 2014.
- M. ASTM D6927 - Standard Test Method for Marshall Stability and Flow of Asphalt Mixtures; 2015.
- N. ASTM D6925 - Standard Test Method for Preparation and Determination of the Relative Density of Hot Mix Asphalt (HMA) Specimens by means of the Superpave Gyrotory Compactor; 2015.
- O. North Dakota Department of Transportation (NDDOT) - Standard Specifications for Road and Bridge Construction; Current Edition.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with North Dakota Department of Transportation standard specifications for Commercial Grade Hot Mix Asphalt.
- B. Provide asphalt mix design no less than 15 days prior to beginning construction.

- C. Provide Project Coordinator or Owner's Representative with Manufacturers written certification that each transport load of asphalt cement (A.C.) meets the requirements of the specification.
- D. Mixing Plant: Complying with State of _____ Highways standard State of North Dakota Highways standard.
- E. Obtain asphaltic mix materials (aggregate and bitumen) from same source throughout entire project. Provide new mix design any time a change in source is made.

1.5 REGULATORY REQUIREMENTS

- A. North Dakota Department of Environmental Quality (NDDEQ):
 - 1. Solid Waste Division for disposal of debris.
 - 2. Water Quality Division for storm water runoff and erosion control.
 - 3. Air Quality Division for clean air standards.

1.6 FIELD CONDITIONS

- A. Do not place asphalt when temperatures are below those shown below:

Compacted Thickness	Air Temp for Surface Course	Air Temp for Subsurface Course	Existing Mat
1-1/2" or less	45 degrees F	40 degrees F	40 degrees F
More than 1-1/2"	40 degrees F	35 degrees F	40 degrees F

PART 2 PRODUCTS

2.1 MATERIALS

- A. Bituminous Materials. Conform to the requirements of Section 818 of the NDDOT Standard Specifications.
- B. Aggregate for Mix: Conform to the requirements of in Section 430.03 of the NDDOT Standard Specifications.
- C. Recycled Asphalt Pavement (RAP).
 - 1. RAP may be incorporated at a rate between 10 and 25 percent by weight.
 - 2. Maximum particle size of 1.5 inch.
 - 3. Do not allow recycled material to come in contact with the burner flame. Add binder to the combined virgin aggregate and recycled material.

2.2 ASPHALT PAVING MIXES AND MIX DESIGN

- A. Mix Design: Conform to NDDOT Standard Specifications, Section 430.03.F.
 - 1. Parking lot and roadways
 - a. Mix design shall be Superpave FAA 42 or FAA 43 and 58S-28 asphalt cement.
 - b. RAP mixtures be allowed.
- B. For batch or continuous mix plants, heat and dry aggregate to reduce the total moisture content to one-half of 1 percent or less, based on the dry weight of the aggregate.
- C. When the drum dryer mixer is used, do not allow the moisture content of the bituminous mixture to exceed 1 percent.
- D. Assure accurate proportioning into the mixer by feeding stockpiled aggregate in two or more compartments that can be accurately controlled to supply the proper mixture of aggregate.

- E. Introduce all materials uniformly into the mixing plant or the drum dryer in the proportions necessary to produce the required quality. Proportion bitumen within plus or minus 0.24 percentage points of the percentage of bitumen designated by the Owner's Representative.
- F. Introduce the required quantities of aggregate and bitumen into the mixer and mix until a uniform and complete coating of aggregate is obtained.
- G. The temperature of the bituminous mixture at discharge from the mixer must not exceed 300 degrees F.
- H. Submit proposed mix design of each class of mix for review prior to beginning of work.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that compacted subgrade and/or aggregate base is dry and ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct prior to beginning any pavement operations.
- C. Verify utility castings are properly adjusted to grade prior to beginning paving operations.

3.2 PREPARATION - TACK COAT

- A. Apply tack coat in accordance with NDDOT Standard Specifications.
- B. Apply tack coat to contact surfaces of curbs and gutters and other concrete appurtenances.
- C. Coat surfaces of manhole frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.
- D. DO NOT mix different classes, grades or types of emulsified asphalt in storage tanks, transports or distributors.
- E. Always pump from bottom of tank.
- F. Always maintain proper distributor spray bar height and spray nozzle angle.
- G. Always maintain proper distributor speed.
- H. Always sweep and clean surfaces to be tack coated.
- I. Never apply more tack coating than can be covered by the same day's operation.

3.3 PREPARATION - BITUMINOUS SEAL

- A. Follow all requirements specified in Section 420 of the Standard Specifications for Road and Bridge Construction, North Dakota Department of Transportation.

3.4 PLACING ASPHALT PAVEMENT

- A. Place asphalt base course within 24 hours of applying primer or tack coat.
- B. Place base and wearing courses to compacted thickness specified in plans.
- C. Maintain a mix laydown temperature of no less than 230 degrees F when ambient temperature is 60 degrees F or higher. When ambient temperature is below 60 degrees F, place mix with a minimum laydown temperature of 250 degrees F.
- D. Spread and finish all mixtures with a self-propelled, bituminous paver, to the required section, leaving the mixture uniformly dense, smooth, and free from irregularities. In locations where it is impractical to use self-propelled bituminous pavers, or other types of lay-down equipment, a road grader or maintainer may be used if approved by the Owner's Representative.

- E. Control the speed of paver to place the mixture uniformly and continuously without tearing or gouging. Do not exceed the Manufacturer's recommendation, and coordinate the paver speed with the output of the plant to provide for a smooth, continuous operation, minimizing starting and stopping.
- F. Level, fill or rake all transverse and longitudinal joints, high or low areas, and surface irregularities, prior to compaction. Immediately remove material dropped on previously compacted lanes.
- G. Sweep and tack previously placed layer or surface before spreading the next layer.
- H. Tack all joints and coordinate vertical construction joints in successive courses so the joints do not fall on the same vertical plane.
- I. Place pavement uniformly against the surface or edge of curb, gutters, manholes or similar structures, and at such an elevation so that the pavement is ¼-inch higher than the edge of the structure after the pavement has been compacted.
- J. Correct any low or high defective areas immediately. Correction can be accomplished by patching or cutting out the surface and replacing with fresh, hot, bituminous mixture, or by milling the surface.
- K. The sequence of rolling operations as well as the type and number of rollers must be commensurate with production, and adequate to obtain the specified density before the mat temperature falls below 185 degrees F.
- L. Thoroughly compact with hand or other mechanical tampers approved by the Owner's Representative any areas not accessible to standard asphalt rollers.
- M. Remove and replace any mixture that becomes loose, broken, or becomes mixed with dirt, shows any excess deficiency of bitumen, or is defective in any manner.
- N. Do not place hot mix on a frozen subgrade, or when weather conditions prevent the proper handling or finishing of the asphalt pavement. Presence of frost particles in or on the subgrade or base course is considered a frozen subgrade.
- O. Compact asphalt pavement sloughs with rollers capable of providing a smooth, finished, compacted slough that is free of tire marks and unevenness or drop-off.
- P. Adjust any casting that is not ¼-inch below the top of the finished surface. Adjust casting upward if greater than ¼-inch below the top of the finished surface.

3.5 TOLERANCES

- A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.
- B. Compacted Thickness: Within 1/4 inch of specified or indicated thickness.
- C. Variation from True Elevation: Within 1/8 inch.
- D. Asphalt cement content within 0.24 percent of approved mix design as determined by daily cutoff report.
- E. Adjacent surface match: New finished surface must be ¼-inch above any adjacent surface.

3.6 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for general requirements for quality control.

3.7 CLEANUP AND PROJECT CLOSEOUT

- A. Return all disturbed areas to a condition equal to that prior to construction.
Clean, remove and dispose of all debris and residue.
- B. Sweep all streets or adjacent paved surfaces following paving.

3.8 PROTECTION

- A. Immediately after placement, protect pavement from mechanical injury until surface temperature is less than 140 degrees F (60 degrees C).
- B. Do not allow traffic on the completed surfacing until the mat has been compacted and has cooled sufficiently to prevent damage.
- C. Damage to the asphalt pavement due to inadequate protection shall be repaired by the Contractor to the satisfaction of the Owner's Representative at no cost to the Owner.

3.9 PROJECT RECORD DOCUMENTS

- A. Record all underground utilities raised or lowered and furnish a copy of "as constructed" plans to the Project Coordinator or Owner's Representative.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment, and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 32 1313
CONCRETE PAVING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Concrete sidewalks, stair steps, integral curbs, and gutters.
- B. Concrete Formwork.
- C. Concrete Reinforcement.
- D. Joint sealing for concrete expansion joints.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 RELATED REQUIREMENTS

- A. Section 31 2200 - Grading: Preparation of site for paving and base and preparation of subsoil at pavement perimeter for planting.
- B. Section 31 2323 - Fill: Compacted subgrade.
- C. Section 32 1123 - Aggregate Base Courses: Aggregate base course.
- D. Section 33 0561 - Manholes and Structures: Manholes, including frames; gutter drainage grilles, covers, and frames for placement by this section.

1.4 REFERENCE STANDARDS

- A. ACI 211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide; 2022.
- B. ACI 301 - Specifications for Concrete Construction; 2020.
- C. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).
- D. ACI 305R - Guide to Hot Weather Concreting; 2020.
- E. ACI 306R - Guide to Cold Weather Concreting; 2016.
- F. ACI 308R - Guide to Curing Concrete; American Concrete Institute International; 2001 (Reapproved 2008).
- G. ACI 347R - Guide to Formwork for Concrete; 2014.
- H. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2022.
- I. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.
- J. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2023.
- K. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2023.
- L. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2023.
- M. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2015.
- N. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
- O. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2023.
- P. ASTM C231/C231M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method; 2014.

- Q. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).
- R. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2019.
- S. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2019, with Editorial Revision (2022).
- T. ASTM C618 - Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2023, with Editorial Revision.
- U. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 2017.
- V. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2014.
- W. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016.
- X. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types); 2023.
- Y. ASTM D1752 - Standard Specification for Preformed Sponge Rubber, Cork, and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2018 (Reapproved 2023).
- Z. ASTM D8139 - Standard Specification for Semi-Rigid, Closed-Cell Polypropylene Foam, Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction; 2023.
- AA. ASTM D5249 - Standard Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints; 2010.
- BB. North Dakota Department of Transportation (NDDOT) - Standard Specifications for Road and Bridge Construction; Current Edition.

PART 2 PRODUCTS

2.1 PAVING ASSEMBLIES

- A. All site concrete shall be, at a minimum, 4,000 psi at 28 days, unless specified elsewhere. Thickness, section and reinforcement as indicated on plans.

2.2 FORM MATERIALS

- A. Form Materials: Conform to ACI 301 and ACI 347.
 - 1. Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
 - 2. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
- B. Flexible Forms:
 - 1. Preformed joint filler; non-extruding bituminous type (ASTM D1751).
 - a. Thickness: 3/4 inch.
 - b. To be used for concrete forms along curved pavement edges only. Not for use as expansion joint filler material.

2.3 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) yield strength; deformed billet steel bars; unfinished.

- B. Dowels: ASTM A36, Grade 60 - 60,000 psi yield strength; smooth steel bars; unfinished.
- C. Tie Wire: Annealed, minimum 16 gage, 0.0508 inch.
- D. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
- E. Provide stainless steel, galvanized, plastic, or plastic coated steel components for placement within 1-1/2 inch of weathering surface.

2.4 CONCRETE MATERIALS

- A. Obtain cementitious materials from same source throughout.
- B. Cement: ASTM C150/C150M, Normal - Type I Portland cement, gray color.
- C. Cement: ASTM C150/C150M, Type IIA - For exterior concrete exposed to earth.
- D. Fine and Coarse Mix Aggregates: ASTM C33/C33M.
 - 1. Aggregate shall conform to Section 802 of the NDDOT Standard Specifications, current edition.
 - 2. Acquire all aggregates for entire project from the same source.
- E. Fly Ash: ASTM C618, Class C or F.
- F. Water: Clean, and not detrimental to concrete.
 - 1. Water/Cement ratio - 0.45 max.
- G. Air-Entraining Admixtures: ASTM C260/C260M.
- H. Chemical Admixtures: ASTM C494/C494M, Type A - Water Reducing, Type C - Accelerating, and Type G - Water Reducing, High Range and Retarding.
 - 1. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

2.5 ACCESSORIES

- A. Slab Isolation/Expansion Joint Filler: 3/4 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
 - 1. Material: ASTM D 4819, Type 2, flexible, closed cell, non-staining, compressible, polyethylene foam.
 - 2. Material: ASTM D8139, semi-rigid, closed-cell, compressible polypropylene foam.
 - 3. Manufacturers:
 - a. Nomaco, Inc; Nomaflex Expansion Joint Filler with Void Cap Option: www.nomaco.com/#sle.
 - b. Nomaco, Inc; Fastflex Slab Isolation Joint Filler with Tear-Off Strip: www.nomaco.com/#sle.
 - c. W.R. Meadows, Inc.; Deck-O-Foam expansion joint filler with tear off strip.
 - d. Approved equivalent_____.
- B. Joint sealant for sidewalks or shared use paths shall be cold applied, gray or white color, and suited for foot traffic. Joint sealing material type shall conform to Section 826 of the NDDOT Standard Specifications for Road and Bridge Construction, current edition.
- C. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
- D. Curing Materials: White-pigmented liquid curing compound conforming to ASTM C309.

2.6 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Concrete Properties:
 - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 4,000 psi.
 - 2. Fly Ash Content: Maximum 25 percent of cementitious materials by weight.
 - 3. Maximum Slump: 4 inches.
 - 4. Total Air Content: 5 to 8 percent.

2.7 MIXING

- A. Mixing shall be per North Dakota Department of Transportation standards.
- B. Concrete Supplier shall provide a load ticket for each delivery of concrete.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify compacted subgrade and/or aggregate base is acceptable and ready to support concrete section to be placed and associated imposed loads.
- B. Verify gradients and elevations of base are correct.

3.2 SUBBASE

- A. See Section 32 1123 for construction of aggregate base and subgrade preparation requirements for work in this Section.

3.3 PREPARATION

- A. Moisten base to minimize absorption of water from fresh concrete.
- B. Coat surfaces of manhole and casting frames with oil to prevent bond with concrete pavement.
- C. Notify Project Coordinator minimum 24 hours prior to commencement of concreting operations.

3.4 FORMING

- A. Place and secure forms to correct location, dimension, profile, and gradient, in accordance with ACI 347.
- B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
- C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement. Joint filler shall be held 1/2 inch below top of concrete.

3.5 REINFORCEMENT

- A. Place reinforcement as indicated on plans.
- B. Install doweled expansion joints in accordance with plan details and as follows:
 - 1. Monolithic curb and gutter: Doweled expansion joints shall be installed every 100 feet and at the nearest joint on either side of curb inlets (maximum 10 feet from edge of inlets). Dowels shall be smooth, 3/4 inch diameter, 24 inches in length, centered on the expansion joints, and equipped with a bond breaker. Bond breaker shall be either 16 inch paper tubes, crimped at outside ends, or greased full length.
 - 2. Sidewalk: Doweled expansion joints shall be installed every 100 feet. Dowels shall be 12 inch long deformed #4 reinforcing steel, 12 inches on-center, centered on joint and in slab, and greased full length.

3.6 COLD AND HOT WEATHER CONCRETING

- A. Follow recommendations of ACI 305R when concreting during hot weather.
- B. Follow recommendations of ACI 306R when concreting during cold weather.

- C. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen. Concrete temperature shall be maintained between 40 degrees F and 90 degrees F during the curing period.

3.7 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R.
- B. In accordance with ACI specifications, concrete that has not been discharged within 90 minutes from when cementitious materials were first added to water, and/or after drum revolutions have exceeded 300 from when cementitious materials were first added to water, shall be rejected and shall not be incorporated into the work. No payment shall be made for concrete that has been rejected for non-conformance with aforementioned requirements.
- C. Do not place concrete when base surface is saturated or ponding water.
- D. In dry conditions, moisten base course prior to concrete placement. Use appropriate procedures to accomplish moistened base without creating areas of ponding water.
- E. Ensure reinforcement, inserts, embedded parts, and formed joints are not disturbed during concrete placement.
- F. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

3.8 JOINTS

- A. Place 3/4 inch wide expansion joints at 100 foot intervals and to separate paving from vertical surfaces, footings, foundations and building walls, concrete currently in place (existing or new), and other components.
 - 1. Form joints with joint filler extending from bottom of pavement to within 1/2 inch of finished surface.
 - 2. Secure to resist movement by wet concrete.
 - 3. All locations requiring expansion joints may not be indicated on plans. Contractor shall ensure that adequate expansion joints are provided at appropriate locations to ensure damage to site improvements does not occur due to expansion and contraction of concrete members.
 - 4. All expansion joint shall be sealed.
- B. Provide control joints:
 - 1. Joint spacing shall be per plans. Where not explicitly indicated, a minimum spacing of 4 feet shall be used. Maximum spacing shall be equal to a distance in feet equal to 2 times the pavement depth in inches.
 - 2. Between sidewalks and curbs.
 - 3. Between curbs and concrete pavement.
 - 4. Control joints may be tooled or saw cut. Tooled joints shall provide 1/4 inch radius and be hand-cut 1/3 depth of slab during finishing.
 - 5. Saw cut control joints shall be 1/8 inch wide and shall be installed after concrete has cured sufficiently to prevent damage. Saw cut control joints shall be cut 1/3 the depth of the slab.

3.9 FINISHING

- A. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius.
- B. Curbs and Gutters: Light broom, texture perpendicular to pavement direction. Provide tooled radius at joints and edges per plan details.
- C. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

- D. Contractor shall not add additional water to the surface of concrete to assist in finishing.

3.10 JOINT SEALING

- A. Expansion joints shall be filled within 10 days after placement and before opening pavement to traffic.
- B. All vertical joint faces shall be cleaned. Oil, asphalt, curing compound, paint, rust, and other foreign materials shall be completely removed. Just before the joints are sealed, the Contractor shall clean the joints with compressed air at a working pressure of at least 90 psi. The joints shall not be sealed when the air temperature is below 40° F.
- C. Adhesive backed polyethylene tape (bond breaker tape) shall be applied to the top of the joint filler to prevent three-sided adhesion.
- D. Install sealant in accordance with manufacturers instructions. See plans for joint seal details. Joint sealant shall be tooled to provide 1/4-inch rounded recess finish.

3.11 TOLERANCES

- A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.
- B. Maximum Variation From True Position: 1/4 inch.

3.12 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements for general requirements for field inspection and testing.
 - 1. Provide free access to concrete operations at project site and cooperate with appointed firm.
 - 2. Contractor shall pay for and provide proposed mix design, to be submitted to Owner's Representative for review prior to commencement of concrete operations.
 - 3. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.
 - 4. Contractor shall pay for all additional tests and inspection required due to failing work and/or tests.
- B. Compressive Strength Tests: ASTM C39/C39M. For each test, mold and cure three concrete test cylinders. At a minimum, obtain test samples from the first load of every pour and for every 50 cu yd of each class of concrete placed thereafter.
 - 1. Take one additional test cylinder during cold weather concreting, cured on the job site under same conditions as the concrete it represents.
 - 2. The cylinders comprising one set will be made from the same sample of concrete and shall be tested at the following schedule: one (1) cylinder tested at seven (7) days and one (1) at twenty-eight (28) days. The third cylinder shall be held by the testing agency until the Owner or Owner's Representative orders it tested or disposed of. If an additional cylinder is cast for cold weather concreting, it shall be tested at twenty-eight (28) days.
 - 3. Additional cylinders cast at the Contractor's request to facilitate early opening to traffic shall be paid for by the Contractor.
- C. Slump Testing: Slump tests shall be performed in accordance with ASTM C143 for each sample taken. The maximum allowable slump of the concrete mix shall be 4 inches.

- D. Air Entrainment: Air content in accordance with ASTM C231 shall also be tested and recorded for each sample of concrete used in making test cylinders. The air content shall fall within the range of 5 percent to 8 percent.
- E. Maintain records of placed concrete items. Record date, location of pour, quantity placed, air temperature, and test samples taken.
- F. Test Results: The testing agency shall report test results in writing to the Owner's Representative within 24 hours of test.

3.13 DEFECTIVE CONCRETE

- A. Defective Concrete:
 - 1. Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
 - 2. Concrete failing to meet specifications for compressive strength, air entrainment, consistency (slump) and/or composition.
 - 3. Concrete that is excessively honey-combed or contains embedded debris.
 - 4. Concrete that is spalling, experiencing surface delamination, and/or any other form of premature degradation.
- B. Any concrete not meeting the requirements of this Section 32 1313 or any other requirements of the contract documents shall be replaced by the Contractor to the satisfaction of the Owner's Representative at no cost to the Owner. Replaced concrete shall be tested at the same schedule as other concrete and such testing shall be incidental.

3.14 PROTECTION

- A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.
- B. Do not permit vehicular traffic over pavement, curb, and/or driveways until concrete has reached 3,000 psi compressive strength, as established by cylinder testing data, and until all joints have been sealed.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 32 1623
SIDEWALKS**

PART 2 PRODUCTS

END OF SECTION

**SECTION 32 9219
SEEDING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Preparation of subsoil.
- B. Placing topsoil.
- C. Seeding, mulching and fertilizer.

1.2 RELATED REQUIREMENTS

- A. Section 31 2200 - Grading: Topsoil material.
- B. Section 31 2200 - Grading: Preparation of subsoil and placement of topsoil in preparation for the work of this section.

1.3 DEFINITIONS

- A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.
- B. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- C. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.4 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

1.5 REGULATORY REQUIREMENTS

- A. Comply with regulatory agencies for fertilizer and herbicide composition.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable. Deliver seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

PART 2 PRODUCTS

2.1 SEED MIXTURE

- A. Seed Mixture:
 - 1. Type 2: Non-Irrigated Seed Mix - General:
 - a. Fairway Crested Wheatgrass: 50%
 - b. Sheeps Fescue: 30%
 - c. Perennial Ryegrass: 20%
 - d. Application Rate: 8 pounds per 1,000 square feet.
- B. Substitutions: Seed mix substitutions must be submitted to Owner's Representative in writing, and approved by Owner.

2.2 ACCESSORIES

- A. Mulching Material: Wood cellulose fiber, dust form, free of growth or germination inhibiting ingredients. Apply hydro-mulch at a rate of 750 pounds per 10,000 square feet.

- B. Fertilizer: 15 pounds/ 10,000 square feet; recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil.
- C. Water: Clean, fresh and free of substances or matter that could inhibit vigorous growth of grass.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that prepared soil base is ready to receive the work of this Section.

3.2 PREPARATION

- A. Prepare subgrade in accordance with Section 31 2200.
- B. Place topsoil in accordance with Section 31 2200.

3.3 FERTILIZING

- A. Apply fertilizer in accordance with manufacturer's instructions.
- B. Apply after smooth raking of topsoil and prior to roller compaction.
- C. Do not apply fertilizer at same time or with same machine as will be used to apply seed.
- D. Mix thoroughly into upper 2 inches of topsoil.
- E. Lightly water to aid the dissipation of fertilizer.

3.4 SEEDING

- A. Apply seed at rate appropriate to seed type listed on Plan.
- B. Do not seed areas in excess of that which can be mulched on same day.
- C. Do not sow immediately following rain, when ground is too dry, or during windy periods.
- D. Roll seeded area with roller not exceeding 112 lbs, use caution to not over compact soil.
- E. Apply in two even applications, applications shall be perpendicular to each other.
- F. Immediately following seeding and compacting, apply hydromulch to a thickness of 3/16 inches. Maintain clear of shrubs and trees.
- G. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.
- H. Following germination, immediately re-seed areas without germinated seeds that are larger than 2 by 2 inches.

3.5 HYDROSEEDING

- A. Apply seeded slurry with a hydraulic seeder at a rate of 8 lbs per 1000 sq ft evenly in two intersecting directions.
- B. Do not hydroseed area in excess of that which can be mulched on same day.
- C. Immediately following seeding, apply mulch to a thickness of 3/16 inches to areas indicated on plan. Maintain clear of shrubs, trees and structures.
- D. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.
- E. Following germination, immediately re-seed areas without germinated seeds that are larger than 4 by 4 inches.

3.6 PROTECTION

- A. Cover seeded slopes where grade is 4 inches per foot or greater with erosion control blanket. Unroll fabric onto slopes without stretching or pulling.

- B. Lay fabric smoothly on surface, bury top end of each section in 6 inch deep excavated topsoil trench. Provide 12 inch overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.
- C. Secure outside edges and overlaps at 36 inch intervals with stakes.
- D. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.
- E. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches.

3.7 MAINTENANCE

- A. Provide maintenance of seeded areas for three consecutive months during during the growing season following the Date of Final Review and Acceptance at no extra cost to Owner.
- B. Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition.
- C. Mow grass at regular intervals to maintain at a maximum height of 3 inches. Do not cut more than 1/3 of grass blade at any one mowing.
- D. Neatly trim edges and hand clip where necessary.
- E. Immediately remove clippings after mowing and trimming.
- F. Water to prevent grass and soil from drying out.
- G. Roll surface to remove minor depressions or irregularities.
- H. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.
- I. Immediately reseed areas that show bare spots.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, Engineer will make measurement in accordance with each specific bid item. For lump sum (LS) bid items, measurements will not be made.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment and materials.
- B. Any required reseeding shall be incidental.
- C. Payment shall be fifty percent at the time of seeding and mulching. Final payment for seeding shall not be issued until the grass is established and accepted by the Owner. Established seeding shall mean weed free with no bare spots larger than four (4) square inches.

END OF SECTION

**SECTION 33 0561
MANHOLES AND STRUCTURES**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Monolithic concrete manholes with masonry transition to lid frame, covers, anchorage, and accessories.
- B. Precast Concrete Catch Basins.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 RELATED REQUIREMENTS

- A. Section 33 4211 - Stormwater Gravity Piping.

1.4 REFERENCE STANDARDS

- A. AASHTO HB - Standard Specifications for Highway Bridges; 2005, with Errata.
- B. ASTM A48/A48M - Standard Specification for Gray Iron Castings; 2022.
- C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- D. ASTM C55 - Standard Specification for Concrete Building Brick; 2023.
- E. ASTM C478 - Standard Specification for Circular Precast Reinforced Concrete Manhole Sections; 2019.
- F. ASTM C478M - Standard Specification for Circular Precast Reinforced Concrete Manhole Sections (Metric); 2019.
- G. ASTM C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals; 2018.
- H. ASTM C923M - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals (Metric); 2018.
- I. ASTM C1634 - Standard Specification for Concrete Facing Brick and Other Concrete Masonry Facing Units; 2023a.

1.5 QUALITY ASSURANCE

- A. Manufacturers must certify in writing, if requested by Owner's Representative, that all manholes, curb inlets, catch basins and appurtenances were constructed within the guidelines of the appropriate ASTM specifications.
- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- C. Precast sections shall be legibly stamped with casting date.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Manufacturer is responsible for providing specific instructions for the proper delivery, storage and handling.
- B. Install manholes, curb inlets, catch basins and components without damage. Immediately remove any damaged components from the project site.

1.7 FIELD CONDITIONS

- A. Maintain materials and surrounding air temperature to minimum 50 degrees F prior to, during, and 48 hours after completion of masonry work.

PART 2 PRODUCTS

2.1 CONCRETE MANHOLES

- A. Weight Rating: H 10 according to AASHTO HB.

2.2 MATERIALS

- A. Precast Reinforced Concrete Pipe Manholes:
 - 1. Precast reinforced concrete manhole risers and top sections shall conform to ASTM C478.
 - 2. All barrel-to-barrel joints shall be sealed using a rubber o-ring gasket. The height of the manhole shall be shown on the plans and the diameter shall be 48 inches minimum or larger if recommended by the manhole fabricator and approved by the Owner's Representative.
 - 3. Steps shall not be placed in manholes unless specified. If specified, the steps to be furnished and installed shall be rubber coated over steel reinforcing of the type manufactured by the Delta Products (Delta-Surefoot Company) or approved equal.
 - 4. Sanitary manholes shall be equipped with an eccentric reducing cone. Storm and air release manholes shall be equipped with a precast cover slab with Type 2 butt joint.
- B. Catch Basins: 30-inch inside diameter precast reinforced concrete catch basins; see plans for details.
 - 1. Steps shall not be placed in catch basins unless specified. If specified, the steps to be furnished and installed shall be rubber coated over steel reinforcing of the type manufactured by the Delta Products (Delta-Surefoot Company) or approved equal.
- C. Connectors for Sanitary Sewer and Air Release Manholes: Flexible gasket connectors equal to "PSX" as manufactured by Press-Seal Gasket Corporation.
- D. Manhole Adjusting Rings: Modular reinforced precast concrete or polyethylene adjusting rings.
- E. Sealant: Butyl rubber, 1"x1" in roll form on paper, equal to "E-Z Stick" as manufactured by Press-Seal Gasket Company.
- F. Manhole Invert: Portland cement concrete with a 28-day compressive strength of 3000 psi.
- G. Chimney Seal: All manhole chimneys shall be equipped with an external chimney seal as manufactured by Rinker Materials, or approved equal.
- H. Mortar: Mortar shall be a compound of one (1) part Portland Cement to two (2) parts of sand by volume to which hydrated lime may be added not to exceed 10 percent of the cement by weight.

2.3 COMPONENTS

- A. Solid lid shall be self self sealing and frame castings for manholes shall be as manufactured by Neenah Foundry, Inc. (model R-1733), East Jordan Iron Works (model 1205), or approved equal.

2.4 MANUFACTURERS

- A. North Dakota Concrete Products (Rinker Materials) - Precast manholes, curb inlets and catch basins, precast adjusting rings.
- B. Neenah Foundry Co. - Manhole, curb inlet and catch basin frames and lids.
- C. East Jordan Iron Works - Manhole, curb inlet and catch basin frames and lids.
- D. Press Seal Gasket Corporation - Rubber sealant; flexible gasket connectors.
- E. Rinker Materials - Manhole chimney seals.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify items provided by other sections of work are properly sized and located.
- B. Verify that built-in items are in proper location, and ready for roughing into Work.
- C. Verify excavation for structures are correct.
- D. Verify height of structure; account for minimum of two 2" adjusting rings.

3.2 PREPARATION

- A. Coordinate placement of inlet and outlet pipes or duct sleeves required by other sections.

3.3 INSTALLATION

- A. Establish elevations and pipe inverts for inlets and outlets as indicated in drawings.

3.4 MANHOLES AND INLETS

- A. Place base on stable, level subgrade.
- B. Place sections plumb and level.
- C. Install joint sealant between all sections.
- D. Backfill and compact uniformly around structures to required density. See Section 31 2323 for fill types and density requirements.
- E. Set adjusting rings, frame and cover to correct elevation. Coordinate with other adjacent work as necessary.
 - 1. This item includes all labor, materials, and equipment necessary to adjust the various castings to the proper line and grade. Note that wood shims to adjust rings and castings are not allowed. Changes in grade shall be made as follows:
 - a. With Concrete Adjusting Rings
 - 1) The maximum height of adjustment is 6 inches. Adjustments shall be made with a maximum of two (2) precast adjusting rings whenever possible. Fine adjustments shall be made by adjusting mortar depths. The castings shall be laid in a full bed of mortar not less than 1/2" in depth. The rings and cone section shall be cleaned to assure a flat seating surface and the rings installed in alignment with no noticeable offsets. Broken pieces and partial sections of adjusting rings are not allowed. Adjusting rings must be one continuous piece.
 - b. With Polyethylene Adjusting Rings
 - 1) The maximum height of adjustment is 6 inches. Adjustments shall be made with polyethylene adjustment rings. The cone shall be cleaned and the rings dry stacked to determine the best ring height and slope ring combination to obtain the proper height and slope match. Once this is determined, the rings shall be marked with a vertical line for future reference and disassembled. A 1/4 inch bead of butyl caulk shall be applied to the cone surface and the first ring placed on the cone section. Another head of butyl caulk shall be placed on the bottom of the next ring as close as possible to the male lip and this ring installed interlocking with the first and aligning the vertical line. This procedure is repeated for each adjustment ring, including caulking the joint between the slope ring and the casting.
 - 2. Care shall be taken to adjust the casting to the proper grade so the final riding surface is smooth, free of bumps and conforms to the alignment and grade of the adjoining concrete. Any castings not satisfying these

requirements shall be redone to the satisfaction of the Owner's Representative. Castings shall be set 1/4 inch below the finished surface.

3. The casting to grade item also includes cleaning all construction debris or dirt from the manhole or inlet bottom and installing a wiped mortar finish around the inside circumference of the precast concrete adjusting rings.
- F. Form inverts, if necessary, with cast-in-place concrete, carefully finishing and troweling to true shape of the lower half of the sewer pipe and sloping up of the manhole, providing positive drainage to the flow line and effluent. Flow line of invert shall be smooth finish.
- G. Plug all lift holes with mortar.
- H. For storm sewer manholes and inlets, seal all pipe penetrations with concrete. Provide smooth, watertight, troweled surface finish.
- I. Coordinate with other sections of work to provide correct size, shape, and location.

3.5 TOLERANCES

- A. Final elevations for inverts and rim shall be within plus or minus 0.02 feet (1/4-inch) of the specified or staked elevation.
- B. Finished manhole elevations shall be 1/4-inch lower than finished pavement grade.

3.6 FIELD QUALITY CONTROL

- A. Provide proper compaction around manholes, curb inlets and catch basins.
- B. Check for proper invert flow.
- C. Check for infiltration and exfiltration and correct if necessary.
- D. Regularly check temporary sewage handling equipment and piping (if in use) to avoid spills or backup.

3.7 CLEANUP AND PROJECT CLOSEOUT

- A. Clean all debris from manholes, curb inlets and catch basins. Individually remove cover and check each one.
- B. Properly adjust all frames to the proposed grade.

3.8 PROJECT RECORD DOCUMENTS

- A. Provide Project Coordinator with a complete set of "as constructed" plans.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment, and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.

END OF SECTION

**SECTION 33 4211
STORMWATER GRAVITY PIPING**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Storm drainage piping, fittings, and accessories.
- B. Pipe culvert, joints and accessories.
- C. Connection of drainage system to municipal sewers.
- D. In-Line Drains, Drain Basins, Trench drains.

1.2 DEFINITIONS

- A. Project Coordinator: Described in Section 01 3000 - Administrative Requirements
- B. Owner's Representatives: Described in Section 01 3000 - Administrative Requirements

1.3 RELATED REQUIREMENTS

- A. Section 31 2316.13 - Trenching: Trenching for utilities and backfill.
- B. Section 31 2323 - Fill: Bedding and backfilling.
- C. Section 33 0561 - Manholes and Structures.

1.4 REFERENCE STANDARDS

- A. AASHTO M 294 - Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter; 2021.
- B. AASHTO M 330 - Standard Specification for Polypropylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter; 2013.
- C. ASTM A48/A48M - Standard Specification for Gray Iron Castings; 2022.
- D. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe; 2022a.
- E. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets; 2021.
- F. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120; 2021a.
- G. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications; 2020.
- H. ASTM D2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 2021.
- I. ASTM D3212 - Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals; 2007 (Reapproved 2013).
- J. ASTM D3350 - Standard Specification for Polyethylene Plastics Pipe and Fittings Materials; 2021.
- K. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe; 2014.
- L. ASTM F2306 / F2306M - Standard Specification for 12 to 60 in. Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Gravity Flow Storm Sewer and Subsurface Drainage Applications; 2015.
- M. ASTM F2648 - Standard Specification for 2 to 60 inch [50 to 1500 mm] Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Land Drainage Applications; 2013.

- N. ASTM F2736 - Standard Specification for 6 to 30 in. (152 To 762 mm) Polypropylene (PP) Corrugated Single Wall Pipe And Double Wall Pipe; 2013 (Editorial Change 1, 2014).
- O. ASTM F2881 - Standard Specification for 12 to 60 in. [300 to 1500 mm] Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications; 2011 (Reapproved 2015).

1.5 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Manufacturer's Installation Instructions: Indicate special procedures required to install Products specified.
- C. Project Record Documents:
 - 1. Record location of pipe runs, connections, manholes, inlets, catch basins, cleanouts, and invert elevations.
 - 2. Identify and describe unexpected variations in subsoil conditions or discovery of uncharted utilities.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Handle, deliver and store all pipe and materials in accordance with manufacturer's recommendations.
- B. Immediately remove from site and appropriately dispose of any damaged materials.
- C. Use proper equipment to handle all materials.

PART 2 PRODUCTS

2.1 STORMWATER PIPE MATERIALS

- A. If not specified on the plans, pipe material shall be selected by the Contractor and approved by the Owner's Representative. Pipe materials shall be limited to those included in this specification.
- B. Reinforced Concrete Storm Sewer Pipe: Conform to the requirements of ASTM C76. Unless otherwise specified, all pipe shall be Class III for 24-inch and smaller and Class II for 27-inch and larger in accordance with ASTM C76, Wall B. All pipe sections shall be cast in sections 8 feet, 6 feet, or 4 feet long, except that the variable length sections may be cast in order to match at manholes and inlets.
 - 1. Pipe joints shall be bell and spigot with rubber gaskets.
- C. Polyvinyl Chloride Storm Sewer Pipe: Polyvinyl chloride storm sewer (PVC) pipe- 15 inches or smaller shall conform to the requirements of ASTM D3034 for type PSM, PVC sewer pipe and shall have an SDR of 35, all of which shall be stamped on the pipe. Polyvinyl chloride sewer pipe 18 inches or larger shall conform to the requirements of ASTM F679-PS46. PVC sewer shall have the elastomeric gasket type joint providing a watertight seal.
 - 1. Schedule 40 PVC pipe conforming to ASTM D1785 and ASTM D2665 shall be considered an "or-equal" substitution for SDR 35 PVC pipe.
- D. Polypropylene Pipe: Corrugated Polypropylene Pipe shall be ADS HP Storm as manufactured by ADS, Inc. or approved equal, with smooth interior walls and gasketed, integral bell and spigot joints.
 - 1. 12- through 30-inch (300 to 750 mm) pipe shall have a smooth interior and annular exterior corrugations and meet or exceed ASTM F2736 and AASHTO M330.

2. Pipe shall be joined with a gasketed integral bell & spigot joint meeting the requirements of ASTM F2736 or F2881, for the respective diameters.
 3. 12- through 60-inch (300 to 1500 mm) pipe joints shall be watertight according to the requirements of ASTM D3212. Spigots shall have gaskets meeting the requirements of ASTM F477. Gasket shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gasket is free from debris. A joint lubricant available from the manufacturer shall be used on the gasket and bell during assembly. Pipe bells shall be reinforced with a polymer composite band, installed by the manufacturer.
 4. Fittings shall conform to ASTM F2736, ASTM F2881 and AASHTO M330, for the respective diameters. Bell & spigot connections shall utilize a spun-on, welded or integral bell and spigot with gaskets meeting ASTM F477. Bell & spigot fittings joint shall meet the watertight joint performance requirements of ASTM D3212. Corrugated couplings shall be split collar, engaging at least 2 full corrugations.
 5. Polypropylene compound for pipe and fitting production shall be impact modified copolymer meeting the material requirements of ASTM F2736, Section 4, ASTM F2881, Section 5 and AASHTO M330, Section 6.1, for the respective diameters.
- E. Pipe bedding and installation shall conform to all manufacturers requirements.

2.2 BEDDING AND COVER MATERIALS

- A. Pipe Bedding and Backfill Material: As specified in Section 31 2323.
- B. Pipe Cover Material: As specified in Section 31 2323.

PART 3 EXECUTION

3.1 TRENCHING

- A. See Section 31 2316.13 - Trenching for additional requirements and Section 31 2323 - Fill for pipe bedding and backfill requirements.
- B. Hand trim excavation for accurate placement of pipe to elevations indicated.

3.2 INSTALLATION - PIPE

- A. Verify that trench cut is ready to receive work and excavations, dimensions, and elevations are as indicated on plans.
- B. Install pipe, fittings, and accessories in accordance with manufacturer's instructions. Seal watertight.
- C. Lay pipe to slope gradients noted on plans; with maximum variation from true slope of 1/8 inch in 10 feet.
- D. Shore pipe to required position; retain in place until after compaction of adjacent fills. Ensure pipe remains in correct position and to required slope.
- E. Pipe bedding and backfill per Section 31 2323 and manufacturers recommendations.

3.3 FIELD QUALITY CONTROL

- A. Perform field inspection in accordance with Section 01 4000 - Quality Requirements.
- B. Maximum Variation From Intended Elevation of Culvert Invert: 1/2 inch (12 mm).
- C. Maximum Offset of Pipe From True Alignment: 1 inch (25 mm).
- D. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.

3.4 PROTECTION

- A. Protect pipe, bedding and cover from damage or displacement until backfilling operation is in progress.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. If specific items are listed on bid form, measurement will be made in accordance with each specific bid item.
- B. For lump sum (LS) bid items, measurements will not be made.
- C. Items indicated to be paid at plan quantity will not be measured.

4.2 PAYMENT

- A. Payment for specific bid items shall be at the unit price bid and shall include all costs for labor, equipment, and materials.
- B. If a bid item is not provided for any items, it shall be considered incidental to other work.
- C. Payment for all items of work listed on the bid form will be for the actual number of units approved by the Owner's Representative. Payment includes excavation, hand trimming of excavation, bedding, materials, equipment and backfilling.

END OF SECTION

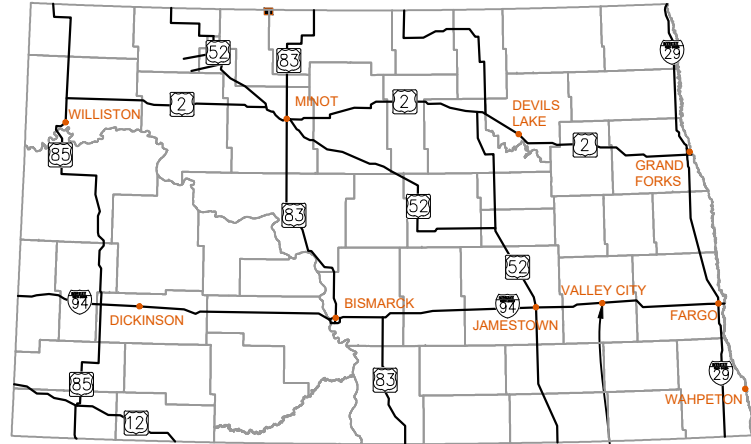
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McCOY HALL STORM SEWER VALLEY CITY STATE UNIVERSITY VALLEY CITY, NORTH DAKOTA

MAY 2026



STATE OF NORTH DAKOTA
PROJECT LOCATION



VALLEY CITY, ND



VICINITY MAP
NO SCALE

INDEX OF SHEETS

1.1	COVER SHEET
2.1-2.2	DETAILS
3.1	SITE REMOVALS AND RESTORATION
4.1	PLAN & PROFILE

CERTIFICATION

I HEREBY CERTIFY THAT THE ATTACHED PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH DAKOTA.

DATE: 05/06/26



ONE CALL
BEFORE DIGGING
1-800-795-0555

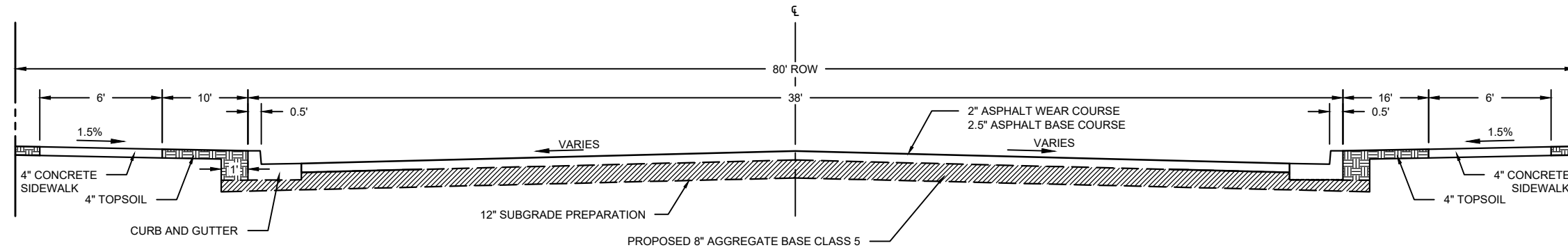
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www.kljeng.com



KLJ PROJECT NO. 2214-01380

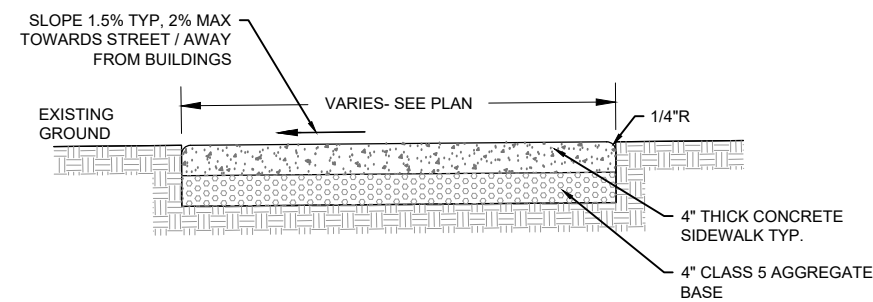
McCOY HALL STORM SEWER



EXISTING TYPICAL SECTION

NOT TO SCALE

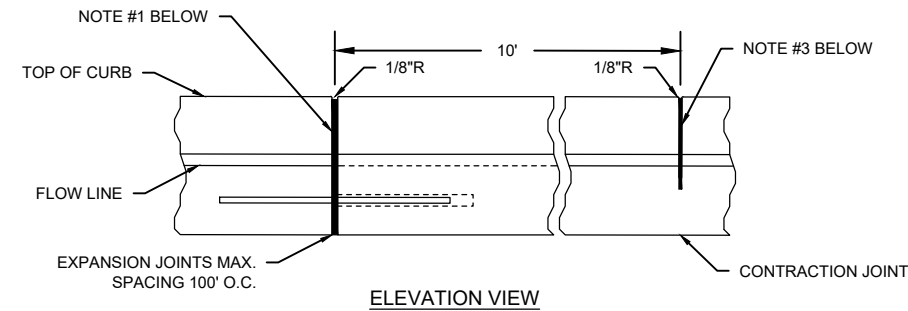
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2.1 EXISTING TYPICAL SECTION
NOT TO SCALE



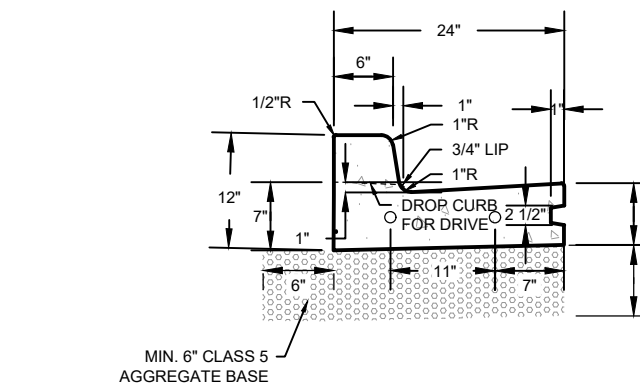
NOTES:

- 3/4" PRE-FORMED EXPANSION JOINT FILLER SHALL BE INSTALLED FOR THE FULL THICKNESS OF THE SIDEWALK AND SHALL BE USED AT ALL JOINTS BETWEEN NEW SIDEWALK AND EXISTING SIDEWALK. EXPANSION JOINT SPACING SHALL NOT EXCEED 100'.
- DOWELED EXPANSION JOINT SHALL BE CONSTRUCTED WITH 12" LONG #4 BARS AT 12" O.C. SPACING, CENTERED IN THE JOINT AND SLAB.
- ALL EXPANSION JOINTS SHALL BE SEALED.
- CONTROL JOINT SPACING SHALL NOT EXCEED THE WIDTH OF THE SIDEWALK OR 8 FEET, WHICHEVER IS LESS.

2
2.1 4" CONCRETE SIDEWALK
NOT TO SCALE



ELEVATION VIEW



STANDARD CURB & GUTTER

NOTES:

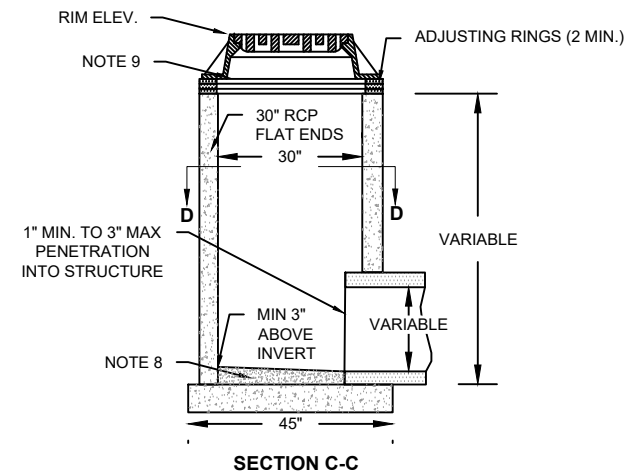
- 3/4" EXPANSION JOINT WITH 3/4"x 24" SMOOTH DOWELS & 16" PAPER TUBES. DOWELS SHALL BE GREASED THE FULL LENGTH. ALL PAPER TUBES SHALL BE PLUGGED OR CRIMPED ON ONE END.
- DOWELS SHALL BE SUPPORTED BY AN APPROVED SUPPORT MADE OF #7 AWG WIRE.
- CONTRACTION JOINT SCORED 1/3 THE DEPTH OF THE CONCRETE.
- ALL JOINTS SHALL BE SEALED.
- KEYED CONSTRUCTION JOINT SHALL BE USED WHEN ADJACENT PAVEMENT IS CONCRETE, NOT REQUIRED FOR ASPHALT PAVEMENT.

3
2.1 CURB & GUTTER
NOT TO SCALE



NO.	DATE	REVISION

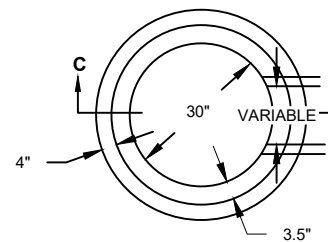
MCCOY HALL STORM SEWER
VALLEY CITY STATE UNIVERSITY
VALLEY CITY, ND
ROADWAY DETAILS



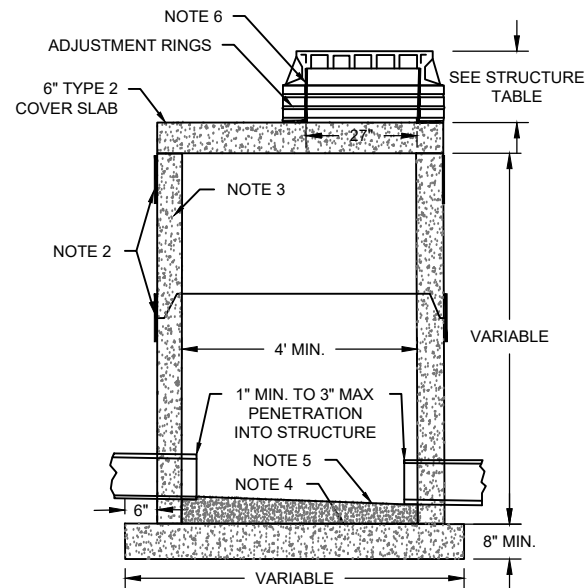
1
2.2 30" MANHOLE / AREA INLET
NOT TO SCALE

NOTES:

1. CASTING SHALL BE DEFINED IN STRUCTURE TABLE.
2. ALLOWANCE FOR INLET ADJUSTMENT SHALL BE 1-1/2" MINIMUM TO 3" MAXIMUM.
3. SINGLE OFFSET GASKETED JOINT FOR 48" MANHOLES, CONFINED GASKETED JOINT FOR ALL OTHER SIZES OF MANHOLES OR EXTERIOR SEAL BE PRESS-SEAL GASKET CORP. EZ WRAP AND EZ STIK NO. 4 PRIMER, MAR MAC CONSTRUCTION PRODUCTS "MAC WRAP", OR AN APPROVED EQUAL IF SPECIFIED.
4. USE PRECAST SECTION FOR THREE PIPES OR LESS UP TO 15" DIAMETER. FOR MORE THAN THREE PIPES OR FOR LARGER PIPES, A SECTION SHALL BE POURED IN PLACE ALLOWING A MINIMUM OF 3" FROM THE BOTTOM OF THE ROOF SLAB TO THE LARGEST OR HIGHEST PIPE.
5. PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM C478, WALL B.
6. PRECAST REINFORCED CONCRETE MANHOLE BASES SHALL BE 8" THICK FOR MANHOLES UP TO 102" DIAMETER
7. BOLTS FOR CASTING SHALL BE TEMPER FINISH, BOUBLE HEAT TREATED-1038 S.A.E. GRADE 5, WITH CAD-DICHROMATE PLATING.
8. SLOPE FLOOR TO INVERT OF LOWEST PIPE WITH SMOOTH, TROWEL FINISHED CONCRETE.
9. I/I BARRIER AS MANUFACTURED BY STRIKE PRODUCTS OR AN APPROVED EQUAL.



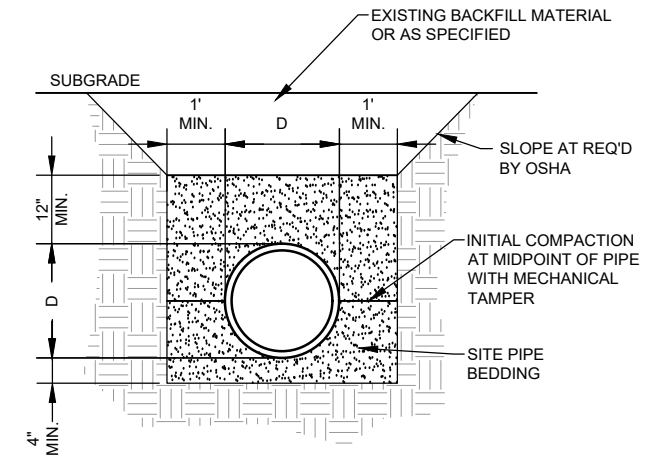
SECTION D-D



2
2.2 STORM SEWER MANHOLE
NOT TO SCALE

NOTES:

1. MANHOLE CASTING SHALL BE DEFINED IN STRUCTURE TABLE.
2. SINGLE OFFSET GASKETED JOINT FOR 48" MANHOLES, CONFINED GASKETED JOINT FOR ALL OTHER SIZES OF MANHOLES OR EXTERIOR SEAL BE PRESS-SEAL GASKET CORP. EZ WRAP AND EZ STIK NO. 4 PRIMER, MAR MAC CONSTRUCTION PRODUCTS "MAC WRAP", OR AN APPROVED EQUAL IF SPECIFIED.
3. PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM C478, WALL B.
4. PRECAST REINFORCED CONCRETE MANHOLE BASES SHALL BE 8" THICK FOR MANHOLES UP TO 102" DIAMETER AND 12" THICK FOR MANHOLES 108" DIAMETER OR GREATER. SLOPE FLOOR TO INVERT OF LOWEST PIPE WITH SMOOTH, TROWEL FINISHED CONCRETE.
5. I/I BARRIER AS MANUFACTURED BY STRIKE PRODUCTS OR AN APPROVED EQUAL.
6. STEPS SHALL NOT BE PLACED IN SANITARY SEWER, STORM SEWER OR AIR RELEASE MANHOLES OR INLETS UNLESS SPECIFIED. IF SPECIFIED, THE MANHOLE STEPS SHALL BE DELTA SUREFOOT OR APPROVED EQUAL. STEPS SHALL BE SPACED 16" ON CENTER.



NOTE:

1. REFER TO ASTM D2321 FOR ACTUAL DIMENSION AND INSTALLATION REQUIREMENTS

3
2.2 SITE PIPE BEDDING
NOT TO SCALE



REVISION	DATE	NO.	DRAFTED	REVIEWED	PROJECT NUMBER	ISSUE DATE
			MS	JD	2214-01380	5/4/2026

MCCOY HALL STORM SEWER
VALLEY CITY STATE UNIVERSITY
VALLEY CITY, ND
STORM SEWER DETAILS

QUANTITIES THIS SHEET

ROADWAY PAVEMENT REMOVAL	137.2 SY
SUPERPAVE FAA 43	34.3 TON
SALVAGED BASE COURSE	105.1 TON
REMOVE AND REPLACES SIDEWALK	75.1 SY
REMOVE AND REPLACE CURB & GUTTER	20 LF

NOTES:

CONTRACTOR SHALL FIELD VERIFY THAT POSITIVE DRAINAGE IS BEING ACHIEVED BASED ON PROPOSED GRADES. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF POSITIVE DRAINAGE IS NOT BEING ACHIEVED, PRIOR TO PLACING CONCRETE.

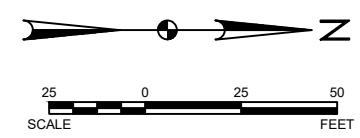
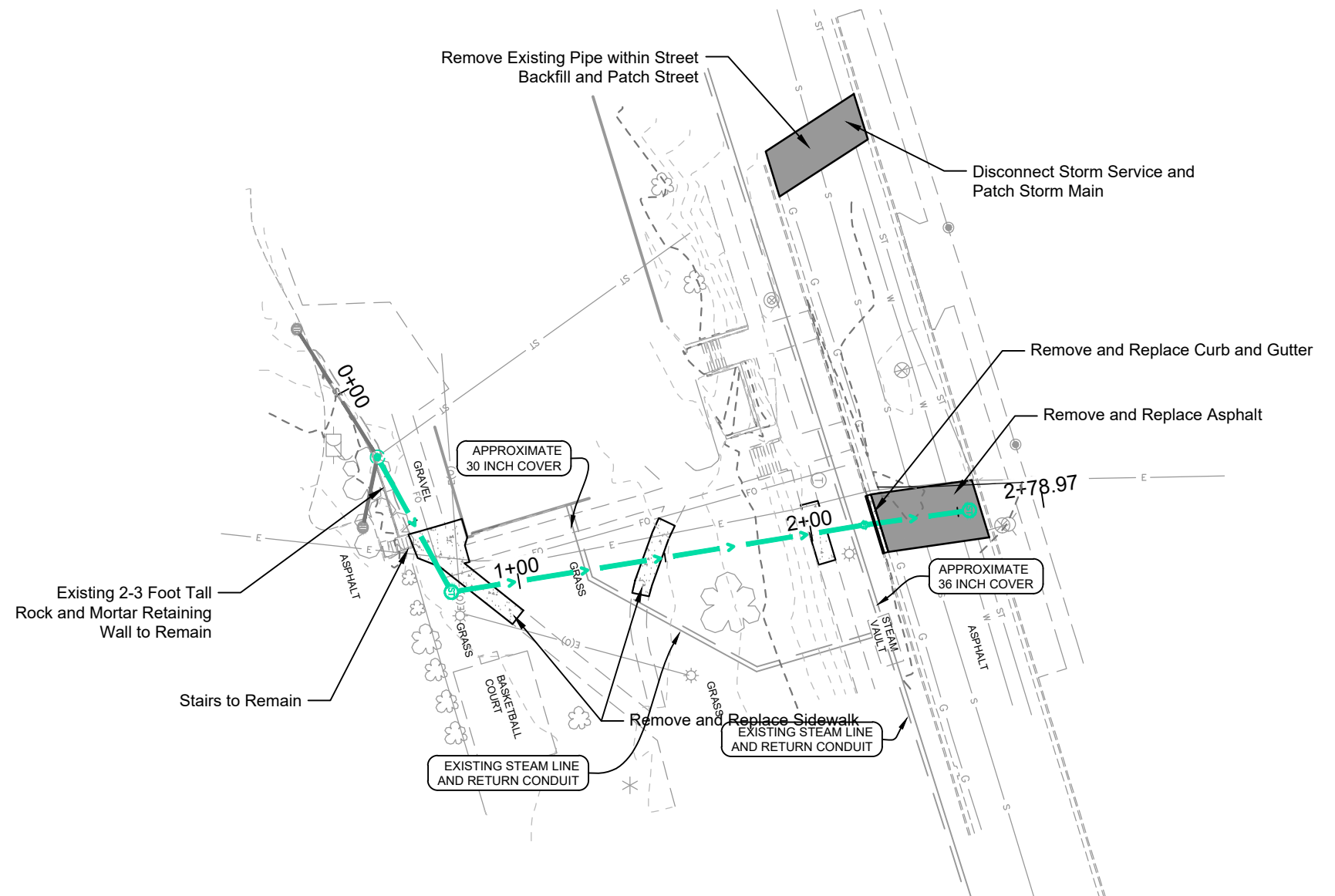


NO.	DATE	REVISION

DRAFTED	MS
REVIEWED	JD
PROJECT NUMBER	2214-01380
ISSUE DATE	5/4/2026

MCCOY HALL STORM SEWER
 VALLEY CITY STATE UNIVERSITY
 VALLEY CITY, ND
SITE REMOVALS AND RESTORATION

SHEET
3.1





QUANTITIES THIS SHEET

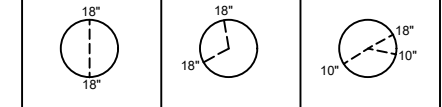
STORM SEWER 18" RCP	36 LF
STORM SEWER 18" PVC OR HDPE	193 LF
30" MANHOLE	1 EA
48" MANHOLE	2 EA
STORM SEWER ABANDONMENT	1 L SUM

NOTES:

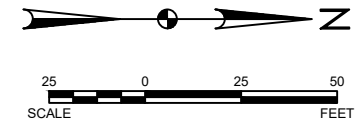
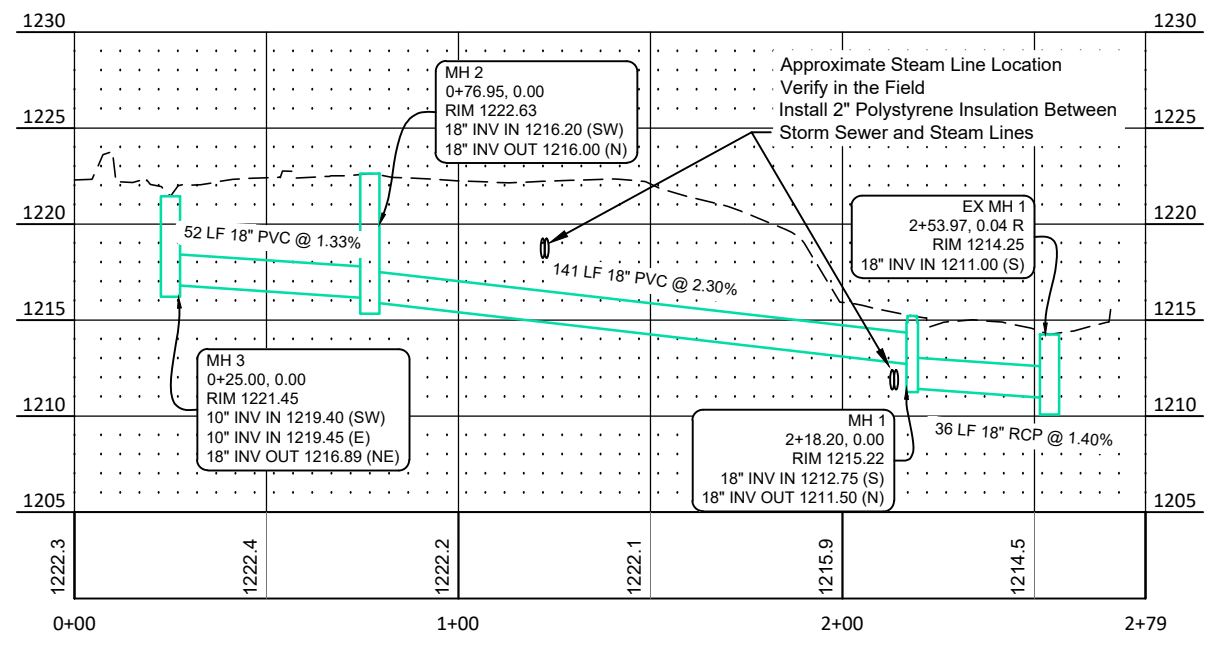
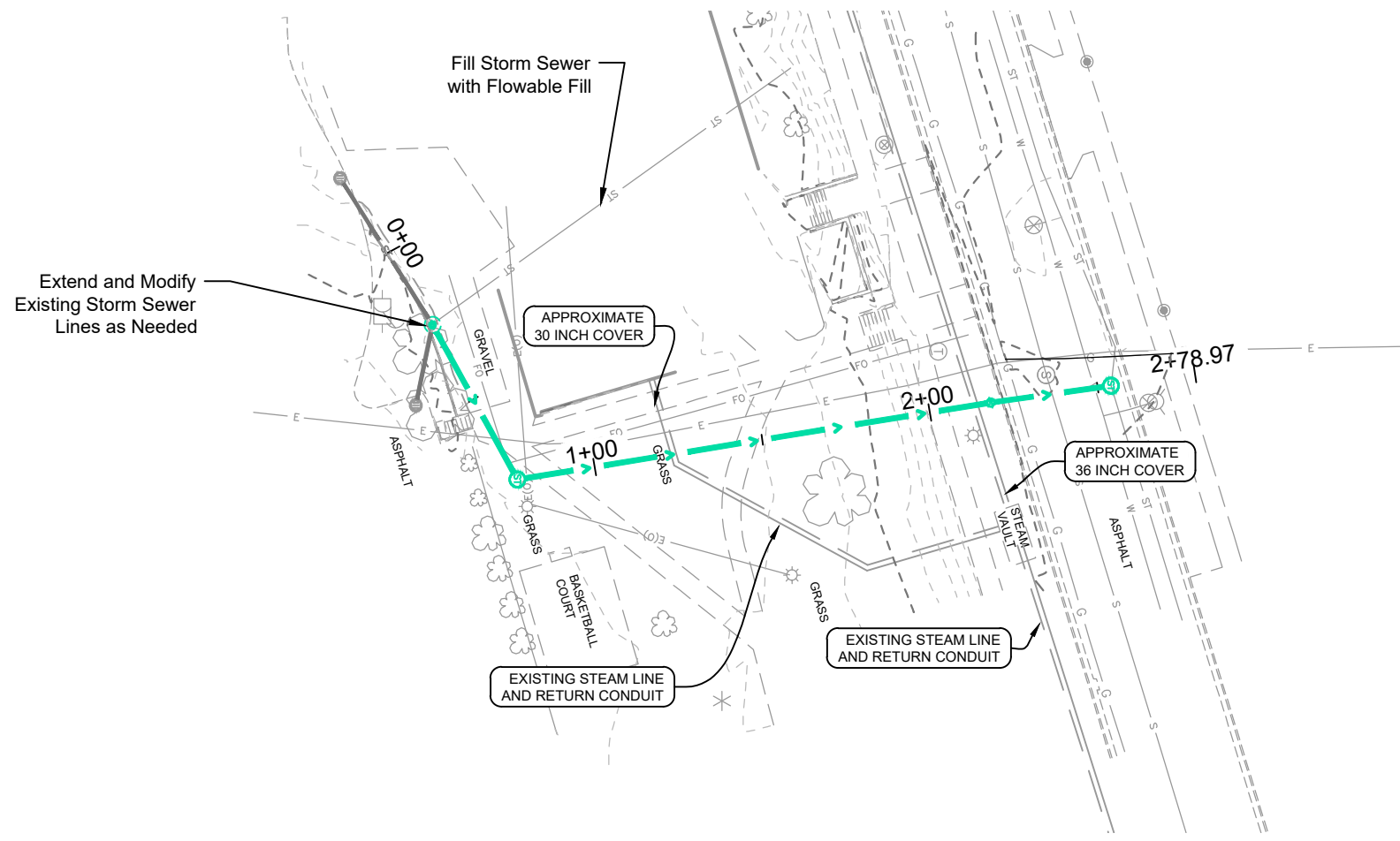
CONTRACTOR SHALL FIELD VERIFY THAT POSITIVE DRAINAGE IS BEING ACHIEVED BASED ON PROPOSED GRADES. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF POSITIVE DRAINAGE IS NOT BEING ACHIEVED, PRIOR TO PLACING CONCRETE.

STRUCTURE SUMMARY TABLE

STRUCTURE NO.	MH-1	MH-2	MH-3
SIZE/TYPE	30" MANHOLE	48" MANHOLE	48" MANHOLE
MANUFACTURER	CONCRETE	CONCRETE	CONCRETE
CASTING - FRAME	NEENAH R-1733	NEENAH R-1733	NEENAH R-2573
CASTING - GRATE	SOLID	SOLID	TYPE C



MODELS AND MANUFACTURES INCLUDED IN CASTING SCHEDULE ARE "OR EQUAL" ITEMS. CONTRACTOR MAY SUBMIT SIMILAR ALTERNATE PRODUCTS FOR REVIEW BY THE ENGINEER.



MCCOY HALL STORM SEWER
 VALLEY CITY STATE UNIVERSITY
 VALLEY CITY, ND

PLAN AND PROFILE

SHEET
4.1