

Project Manual

**Springfield Park Improvements – Phase 1,
Contract C-23
Town of Buchanan
Outagamie County, WI**



Quest eBidDoc #8628769

August 2023

Prepared by:

Cedar Corporation
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Engineer's Project Number: 04916-0130

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Prepared for:

Town of Buchanan
Outagamie County, WI

Prepared by:



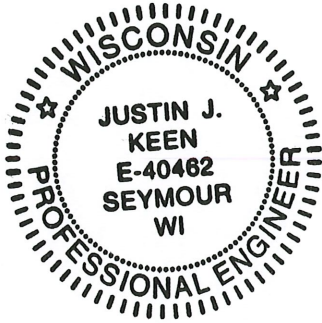
REUSE OF DOCUMENTS

This document has been developed for a specific application and not for general use; therefore, it may not be used without the written approval of Cedar Corporation. Unapproved use is at the sole responsibility of the unauthorized user.

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SECTION 00 01 07
SEALS AND SIGNATURES

I hereby certify that the portion of this submission described below was prepared by me, or under my direct supervision and responsible charge. I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.



Justin J. Keen, P.E.

Justin J. Keen

8-16-23

Signature

Date

Discipline: Civil, Project Engineer

WI License No. E-40462

License expires: July 31, 2024

Division(s) covered by this seal: All

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**SECTION 00 11 13
ADVERTISEMENT FOR BIDS**

Sealed bids for Town of Buchanan, **Springfield Park Improvements – Phase 1, Contract C-23**, project will be accepted through Quest vBid electronic bid service *or* by submitting a paper copy at the Town Hall: N178 County Road N, Appleton, WI 54915, by 11:00 AM (local time), on August 31, 2023; and then at said office publicly opened and read aloud.

The work, in general, will include the approximate quantities and items listed below:

800	LF	Drain Tile and Appurtenances,
140	LF	18" CMP Culvert and Endwalls,
200	CY	Crushed Aggregate Base Course,
		Removal of Existing Park Playground Equipment
		Landscape Restoration of Disturbed Areas.

The proposals shall be submitted on the forms furnished with the specifications. Each proposal shall be accompanied by a certified check payable to the owner equal to five percent (5%) of the proposal or a bid bond of a bonding company duly authorized to do business in the State of Wisconsin in an amount equal to five percent (5%) of the proposal. This proposal guarantee shall be subject to forfeiture as provided by law. When submitting an electronic bid, Bidder is required to deliver the original certified check or bid bond within 72 hours of bid opening to Cedar Corporation.

For this project, bids will be received and accepted via the online electronic bid service through QuestCDN vBid online bidding, or by sealed paper copy. Complete digital project bidding documents can be downloaded at www.cedarcorp.com or www.questcdn.com. Reference **QuestCDN project number 8628769** for a nonrefundable charge of \$50. Contact QuestCDN Customer Support at 952-233-1632 or info@questcdn.com for assistance in membership registration, and downloading digital project information, and vBid online bid submittal. Project bid documents must be downloaded from QuestCDN which will add your company to the Planholder List and allow access to vBid online bidding for the submittal of your bid. The QuestCDN website will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only through the designated website. Neither Owner nor Engineer will be responsible for Bidding Documents, including addenda, if any, obtained from sources other than the designated website.

Proposals shall not be withdrawn for a period of 60 days after the date of opening. The Town of Buchanan reserves the right to reject any or all of the proposals and to waive any informalities therein.

Dates of Publication: August 16 and August 23, 2023

By Authority of: Michael J.D. Brown, Town Administrator

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SECTION 00 21 13
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. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Owner has established a Bidding Documents Website as indicated in the Advertisement or invitation to bid. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader Version 7.x or later. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and

receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within three days of Owner's request, Bidder must submit the following information:
 - A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
 - B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
 - C. Bidder's state or other contractor license number, if applicable.
 - D. Subcontractor and Supplier qualification information.
- 3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

ARTICLE 4—PRE-BID CONFERENCE

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

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

- 5.01 *Site and Other Areas*
 - A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities,

construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 *Existing Site Conditions*

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

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

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

5.03 *Other Site-related Documents*

- A. In addition to the documents regarding existing Site conditions referred to in Paragraph 5.02.A, the following other documents relating to conditions at or adjacent to the Site are known to Owner and made available to Bidders for reference: *Not Applicable*.

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

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

5.04 *Site Visit and Testing by Bidders*

- A. Bidder is encouraged to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
- B. Bidders visiting the Site are required to arrange their own transportation to the Site.
- C. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

5.05 *Owner's Safety Program*

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

5.06 *Other Work at the Site*

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

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

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

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and

certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.

- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:
 - A. **Justin Keen, P.E. – Project Engineer, Cedar Corporation**
Office Phone: 920-491-9081, Ext. 1203
Direct Phone: 920-785-7303
Email: justin.keen@cedarcorp.com
- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than five days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of five percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents. Certified check payable to the Owner in the amount of five percent of bid as required above is allowed.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.

- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

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

ARTICLE 10—SUBSTITUTE AND “OR EQUAL” ITEMS

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or “or-equal” items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or “or-equal” item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.
- 10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 11.01 All Bidders shall submit to Owner a list of proposed subcontractors. Utilize form provided in bid proposal documents.
- 11.02 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned

by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

- 11.03 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

ARTICLE 12—PREPARATION OF BID

- 12.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
- 12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.
- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder’s name and official address.

- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

13.01 *Unit Price*

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.
- D. AS ORDERED Items:
1. Bid items that are noted as "AS ORDERED" may have significant changes in quantity or may or may not be used at all. These items are not subject to the provisions of the supplementary conditions SC. 13.03.E. The items of work will be installed at the discretion of the Engineer or Owner.

13.02 Allowances

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

ARTICLE 14—SUBMITTAL OF BID

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

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

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

ARTICLE 16—OPENING OF BIDS

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

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.

18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.

18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.

18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.

18.05 *Evaluation of Bids*

- A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- B. Owner shall have the right to accept alternatives in any order or combination or to not accept any for which Owner determines funds will be available at the time of award, unless specifically otherwise provided.
- C. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.

- 18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS AND INSURANCE

- 19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.
- 19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

- 20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 21—WAGE RATE REQUIREMENTS

- 21.01 The contractor shall comply with all applicable federal, state, and local rules and regulations regarding the posting, certification, and filing of wage rates paid to employees.

END OF SECTION

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**SECTION 00 41 00
BID FORM**

Bidder's Name: _____

Project Title: Springfield Park Improvements – Phase 1,
Contract C-23

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

ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: Town of Buchanan
N178 County Road N
Appleton, WI 54915
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
- A. Section 00 43 13 - Required Bid security.
 - B. Section 00 43 36 - List of Proposed Subcontractors.
 - C. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids.
 - D. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids.

ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES

- 3.01 *Unit Price Bids*
- A. Bidder will perform the following Work at the indicated unit prices:

Unit Price Bid Schedule

SPRINGFIELD PARK IMPROVEMENTS, CONTRACT C-23

ITEM NO.	DESCRIPTION	QTY.	UNIT	BID UNIT PRICE	BID TOTAL
BASE BID:					
1	STONE TRACKING PAD	1	EACH	\$	\$
2	ROCK FILLED FILTER BAGS, (5 BAGS EACH LOCATION)	3	EACH	\$	\$
3	CLEARING AND GRUBBING - REMOVE EXISTING STUMPS	4	EACH	\$	\$
4	DEMOLITION AND REMOVAL OF MISCELLANEOUS PLAYGROUND EQUIPMENT ITEMS	1	L.S.	\$	\$
5	SALVAGE AND DELIVER CONCRETE BARRICADES TO YARD WASTE SITE	1	L.S.	\$	\$
6	CULVERT, 12" CMP	134	L.F.	\$	\$
7	FLARED END SECTION, 12"	2	EACH	\$	\$
8	CRUSHED AGGREGATE BASE COURSE - PARKING AREA/CULVERT/FILL AREA, (1-1/4" DENSE GRADED BASE)	400	TON	\$	\$
9	DRAIN TILE, 6" PERFORATED PVC	800	L.F.	\$	\$
10	PVC YARD DRAIN	10	EA.	\$	\$
11	TRACER WIRE SIGNAL CONNECTION BOX	4	EA.	\$	\$
12	RESTORATION - TOPSOIL, SEED, FERTILIZER, EROSION MAT, (EST. 1,500 S.Y.)	1	L.S.	\$	\$
13	TRAFFIC CONTROL	1	L.S.	\$	\$
PROJECT TOTAL - BASE BID:					\$

(On line above: write out Project Total - Base Bid)

ALTERNATE BID ITEM(S):

ALTERNATE BID 1:

A-1	DRAIN TILE, 6" PERFORATED HDPE. (REPLACES BID ITEM 9.)	800	L.F.	\$	\$
-----	--	-----	------	----	----

The Owner reserves the right to select and add any of the Schedule(s) or Alternate(s) listed above. If the Owner selects one or more of the Schedule(s) or Alternate(s), the award of the contract shall be based upon the total sum of the Schedule(s) and Alternate(s) selected.

- B. Bidder acknowledges that:
 1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
 2. estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.
- C. The Owner reserves the right to select and add any of the Schedule(s) or Alternate(s) listed above. If the Owner selects one or more of the Schedule(s) or Alternate(s), the award of the contract shall be based upon the total sum of the Schedule(s) and Alternate(s) selected.

ARTICLE 4—TIME OF COMPLETION

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

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

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

Addendum Number	Addendum Date

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder’s Representations*

- A. In submitting this Bid, Bidder represents the following:
1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
 2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
 6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder’s (Contractor’s) safety precautions and programs.
 7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
 8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
 9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of

discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 6.02 A.:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

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

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

Address for giving notices:

Bidder's Contact:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Phone: _____

Email: _____

Address: _____

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

**SECTION 00 43 13
 BID BOND (PENAL SUM FORM)**

Bidder Name: Address (<i>principal place of business</i>):	Surety Name: Address (<i>principal place of business</i>):
Owner Name: Town of Buchanan Address (<i>principal place of business</i>): N178 County Road N Appleton, WI 54915	Bid Project (<i>name and location</i>): Springfield Park Improvements – Phase 1, Contract C-23 Town of Buchanan, Outagamie County, WI Bid Due Date:
Bond Penal Sum: Date of Bond:	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
<i>(Full formal name of Bidder)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____

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.

**SECTION 00 43 36
PROPOSED SUBCONTRACTORS FORM**

Bidder's Name: _____

The following subcontractors will be utilized for portions of the project work. Changes shall not be made subsequent to the bid unless the change(s) is approved by the Owner.

Subcontractor	Classification of Work	Estimated Dollar Amount
	Drain Tile / Yard Drains / Culverts	
	Erosion Control	
	Landscape Restoration	

END OF SECTION

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**SECTION 00 51 00
NOTICE OF AWARD**

Date of Issuance: _____

Owner: Town of Buchanan Owner's Project No.: C-23

Engineer: Cedar Corporation Engineer's Project No.: 04916-0130

Project: Springfield Park Improvements – Phase 1

Contract Name: Springfield Park Improvements – Phase 1, Contract C-23

Bidder: **[Name]**

Bidder's Address: **[Address]**

You are notified that Owner has accepted your Bid dated **[date]** 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 \$**[Contract Price]**. 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): *None*.

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: **Town of Buchanan**

By (*signature*): _____

Name (*printed*): _____

Title: _____

Copy: Engineer

SECTION 00 52 13
AGREEMENT BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between the Town of Buchanan (“Owner”) and [name of contracting entity] (“Contractor”).

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

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: Springfield Park Improvements – Phase 1 consisting of drain tile installation, yard drain, culvert, crushed aggregate base course work, playground equipment removal, and landscape restoration.

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Springfield Park Improvements – Phase 1, Contract C-23; Town of Buchanan, Outagamie County, WI.

ARTICLE 3—ENGINEER

3.01 The Owner has retained Cedar Corporation (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.

3.02 The part of the Project that pertains to the Work has been designed by Cedar Corporation.

ARTICLE 4—CONTRACT TIMES

4.01 *Time is of the Essence*

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

4.02 *Contract Times:*

A. The Work will be substantially complete within 14 calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions and completed and ready for final payment in accordance with

Paragraph 15.06 of the General Conditions within 21 days after the date when the Contract Times commence to run.

B. All work shall be completed by November 10, 2023.

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. *Substantial Completion*: Contractor shall pay Owner \$1,200 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
2. *Completion of Remaining Work*: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$700 for each day that expires after such time until the Work is completed and ready for final payment.
3. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.

B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

ARTICLE 5—CONTRACT PRICE

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

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

Total of all Extended Prices for Unit Price Work (subject to final adjustment based on actual quantities) _____ (\$_____).

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

ARTICLE 6—PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

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

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment as recommended by the Engineer each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.
 - a. 95 percent of the value of the Work completed (with the balance being retainage).
 - 1) If 50 percent or more of the Work has been 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. 95 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 set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 100 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

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

6.04 *Consent of Surety*

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

6.05 *Interest*

- A. All amounts not paid when due will bear interest at the maximum rate allowed by law at the place of the project.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
 1. This Agreement (pages ___ to ___, inclusive).
 2. Bonds:
 - a. Performance bond, together with power of attorney (pages ___ to ___, inclusive).
 - b. Payment bond, together with power of attorney (pages ___ to ___, inclusive).
 3. General Conditions (pages ___ to ___, inclusive).
 4. Supplementary Conditions (pages ___ to ___, inclusive).
 5. Specifications as listed in the table of contents of the project manual.
 6. Drawings (not attached but incorporated by reference) consisting of **[number]** sheets with each sheet bearing the following general title: **[title on Drawings]**.
 7. Addenda (numbers **[number]** to **[number]**, inclusive).
 8. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages ___ to ___, inclusive).
 - b. Wage Rates (if applicable).
 9. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.

- d. Field Orders.
- e. Contractor Payment Request.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 Contractor's Representations

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

explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

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

8.02 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has

furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor in the Supplementary Conditions.

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

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

Owner:

Town of Buchanan

(typed or printed name of organization)

By: _____

(individual's signature)

Date: _____

(date signed)

Name: _____

(typed or printed)

Title: _____

(typed or printed)

Attest: _____

(individual's signature)

Title: _____

(typed or printed)

Address for giving notices:

N178 County Road N

Appleton, WI 54915

Phone: _____

Email: _____

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

Contractor:

(typed or printed name of organization)

By: _____

(individual's signature)

Date: _____

(date signed)

Name: _____

(typed or printed)

Title: _____

(typed or printed)

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

Attest: _____

(individual's signature)

Title: _____

(typed or printed)

Address for giving notices:

Phone: _____

Email: _____

License No.: _____

(where applicable)

State: _____

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**SECTION 00 55 00
NOTICE TO PROCEED**

Owner: Town of Buchanan Owner's Project No.: C-23
Engineer: Cedar Corporation Engineer's Project No.: 04916-0130
Contractor: [Name] Contractor's Project No.: _____
Project: Springfield Park Improvements – Phase 1
Contract Name: Springfield Park Improvements – Phase 1, Contract C-23
Effective Date of Contract: _____

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on _____ pursuant to Paragraph 4.01 of the General Conditions. On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

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: *None*.

Owner: **Town of Buchanan**
By (signature): _____
Name (printed): _____
Title: _____
Date Issued: _____
Copy: Engineer

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**SECTION 00 61 13.13
PERFORMANCE BOND**

<p>Contractor</p> <p>Name: _____</p> <p>Address (<i>principal place of business</i>): _____</p>	<p>Surety</p> <p>Name: _____</p> <p>Address (<i>principal place of business</i>): _____</p>
<p>Owner</p> <p>Name: Town of Buchanan</p> <p>Mailing address (<i>principal place of business</i>):</p> <p>N178 County Road N Appleton, WI 54915</p>	<p>Contract</p> <p>Description (<i>name and location</i>):</p> <p>Springfield Park Improvements – Phase 1, Contract C-23; Town of Buchanan, Outagamie County, WI.</p> <p>Contract Price: _____</p> <p>Effective Date of Contract: _____</p>
<p>Bond</p> <p>Bond Amount: _____</p> <p>Date of Bond: _____</p> <p><i>(Date of Bond cannot be earlier than Effective Date of Contract)</i></p> <p>Modifications to this Bond form:</p> <p><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.

**SECTION 00 61 13.16
PAYMENT BOND**

<p>Contractor Name: _____ Address (<i>principal place of business</i>): _____</p>	<p>Surety Name: _____ Address (<i>principal place of business</i>): _____</p>
<p>Owner Name: Town of Buchanan Mailing address (<i>principal place of business</i>): N178 County Road N Appleton, WI 54915</p>	<p>Contract Description (<i>name and location</i>): Springfield Park Improvements – Phase 1, Contract C-23; Town of Buchanan, Outagamie County, WI. Contract Price: _____ Effective Date of Contract: _____</p>
<p>Bond Bond Amount: _____ Date of Bond: _____ <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 18</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: _____

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.

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 No.

Application Period:	Application Date:
From (Contractor):	Via (Engineer): Cedar Corporation
Contract:	Engineer's Project No:
Contractor's Project No:	

**Application For Payment
Change Order Summary**

Approved Change Orders	Additions	Deductions
Number		
TOTALS		
NET CHANGE BY		
CHANGE ORDERS		

1. ORIGINAL CONTRACT PRICE..... \$ _____
2. Net change by Change Orders..... \$ _____
3. Current Contract Price (Line 1 ± 2)..... \$ _____
4. TOTAL COMPLETED AND STORED TO DATE
(Column 1 total on Progress Estimates)..... \$ _____
5. RETAINAGE:
 - a. 5% X _____ Work Completed..... \$ _____
 - b. 5% X _____ Stored Material..... \$ _____
 - 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..... \$ _____

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

Contractor Signature _____ Date: _____

Payment of: \$ _____ (Line 8 or other - attach explanation of the other amount)

is recommended by: _____ (Engineer) _____ (Date)

Payment of: \$ _____ (Line 8 or other - attach explanation of the other amount)

is approved by: _____ (Owner) _____ (Date)

Approved by: _____ Funding or Financing Entity (if applicable) _____ (Date)

Unit Price Progress Estimate

Contractor's Application

Project:										Application Number:																											
Application Period:										Application Date:																											
A		B		C		D		E		F		G		H		I		J																			
Bid No.	Item Description	Estimated Bid Quantity	Unit Price	Quantity Completed		Materials Stored	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	% Comp.																		
				Previous Applications	This Application																																
TOTAL																																					



REQUEST FOR INTERPRETATION

Community Infrastructure • Architecture • Environmental Services

Client	
Project	
Prepared By	

Project No.	
Date	

From (Contractor)	
Request Number	
Date	
Item Description	
Spec Section	

From (Name)	
Phone	
Drawing & Detail No.	
Reference	
Spec Title	

Description of Request	

(Add additional sheets as necessary to provide adequate information)

Supporting Data Attached	<input type="checkbox"/> Drawings	<input type="checkbox"/> Product Data	<input type="checkbox"/> Samples
	<input type="checkbox"/> Tests	<input type="checkbox"/> Report	<input type="checkbox"/> Other _____

Interpretation (For Engineer's Use Only)	

By		Date	
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SECTION 00 63 36
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:	Effective Date
Date Issued:	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: _____

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SECTION 00 63 49
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:	Effective Date of Work
Date Issued:	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:	_____	_____

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SECTION 00 63 63
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:	Effective Date of
Date Issued:	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)	Accepted by Contractor
By: _____	_____
Title: _____	_____
Date: _____	_____
_____ Authorized by Owner	_____ Approved by Funding Agency (if applicable)
By: _____	_____
Title: _____	_____
Date: _____	_____

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**SECTION 00 65 16
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.

	Executed by Engineer	Received by Owner	Received by Contractor
By <i>(signature)</i> :	_____	_____	_____
Name <i>(printed)</i> :	_____	_____	_____
Title:	_____	_____	_____

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By



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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

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

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

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

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

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

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

1.02 Terminology

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

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

ARTICLE 2—PRELIMINARY MATTERS

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

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

2.02 *Copies of Documents*

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

2.03 *Before Starting Construction*

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

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

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

2.05 *Acceptance of Schedules*

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

2.06 *Electronic Transmittals*

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

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

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

3.02 *Reference Standards*

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

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

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

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

B. *Resolving Discrepancies*

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

3.04 *Requirements of the Contract Documents*

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

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

3.05 *Reuse of Documents*

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

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

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

4.02 *Starting the Work*

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

4.03 *Reference Points*

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

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

4.04 *Progress Schedule*

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

4.05 *Delays in Contractor's Progress*

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

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

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

5.01 *Availability of Lands*

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

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

5.02 *Use of Site and Other Areas*

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

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

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

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

5.03 *Subsurface and Physical Conditions*

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

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
3. Technical Data contained in such reports and drawings.

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

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

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

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

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

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

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

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

5.05 *Underground Facilities*

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

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

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

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

5.06 *Hazardous Environmental Conditions at Site*

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

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

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

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

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

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

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

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

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

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

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

6.02 *Insurance—General Provisions*

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

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

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

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

6.03 *Contractor's Insurance*

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

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

6.04 *Builder's Risk and Other Property Insurance*

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

6.05 *Property Losses; Subrogation*

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

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

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

6.06 *Receipt and Application of Property Insurance Proceeds*

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

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

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

7.02 *Supervision and Superintendence*

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

7.03 *Labor; Working Hours*

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

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

7.04 *Services, Materials, and Equipment*

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

7.05 *"Or Equals"*

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

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

7.06 *Substitutes*

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

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

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

7.07 *Concerning Subcontractors and Suppliers*

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

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

7.08 *Patent Fees and Royalties*

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

Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 *Permits*

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

7.10 *Taxes*

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

7.11 *Laws and Regulations*

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

7.12 *Record Documents*

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

to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 *Safety and Protection*

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

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

7.14 *Hazard Communication Programs*

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

7.15 *Emergencies*

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

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

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

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

4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.
 5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
 7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
 8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.
- D. *Resubmittal Procedures for Shop Drawings and Samples*
1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
 2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
 3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.
- E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*
1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.

- c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.
 - d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
- 2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 Contractor's General Warranty and Guarantee

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

6. The issuance of a notice of acceptability by Engineer;
 7. The end of the correction period established in Paragraph 15.08;
 8. Any inspection, test, or approval by others; or
 9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

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

7.19 *Delegation of Professional Design Services*

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.

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

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate

with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

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

8.02 *Coordination*

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

8.03 *Legal Relationships*

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

will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

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

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

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

9.03 *Furnish Data*

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

- 9.04 *Pay When Due*
- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.
- 9.05 *Lands and Easements; Reports, Tests, and Drawings*
- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.
- 9.06 *Insurance*
- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.
- 9.07 *Change Orders*
- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.
- 9.08 *Inspections, Tests, and Approvals*
- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.
- 9.09 *Limitations on Owner's Responsibilities*
- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- 9.10 *Undisclosed Hazardous Environmental Condition*
- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.
- 9.11 *Evidence of Financial Arrangements*
- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).
- 9.12 *Safety Programs*
- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

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

10.02 *Visits to Site*

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

10.03 *Resident Project Representative*

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

10.04 *Engineer's Authority*

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

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

10.05 *Determinations for Unit Price Work*

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

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

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

10.07 *Limitations on Engineer's Authority and Responsibilities*

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

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

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

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

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

10.08 *Compliance with Safety Program*

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

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

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

11.02 *Change Orders*

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

11.03 *Work Change Directives*

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

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

11.04 *Field Orders*

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

11.05 *Owner-Authorized Changes in the Work*

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

11.06 *Unauthorized Changes in the Work*

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

11.07 *Change of Contract Price*

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

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

11.08 *Change of Contract Times*

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

11.09 *Change Proposals*

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

B. *Change Proposal Procedures*

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

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

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

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

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

11.10 *Notification to Surety*

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

ARTICLE 12—CLAIMS

12.01 *Claims*

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

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

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

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

13.01 *Cost of the Work*

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

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

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

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

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
- 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
- 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.

- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

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

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
- 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 6. Expenses incurred in preparing and advancing Claims.
- 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

- 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
- 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

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

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

13.02 Allowances

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

13.03 Unit Price Work

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

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

E. *Adjustments in Unit Price*

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

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

14.01 *Access to Work*

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

14.02 *Tests, Inspections, and Approvals*

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

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

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

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

14.03 *Defective Work*

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

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

14.04 *Acceptance of Defective Work*

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

14.05 *Uncovering Work*

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

14.06 *Owner May Stop the Work*

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

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

14.07 *Owner May Correct Defective Work*

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

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

15.01 *Progress Payments*

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

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

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

C. *Review of Applications*

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

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

D. *Payment Becomes Due*

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

E. *Reductions in Payment by Owner*

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

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

15.02 *Contractor's Warranty of Title*

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

15.03 *Substantial Completion*

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

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

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

15.04 *Partial Use or Occupancy*

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

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

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

15.05 *Final Inspection*

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

15.06 *Final Payment*

A. *Application for Payment*

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

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

15.07 *Waiver of Claims*

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

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

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

15.08 *Correction Period*

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

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

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

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

16.02 *Owner May Terminate for Cause*

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

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

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

16.03 *Owner May Terminate for Convenience*

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

16.04 *Contractor May Stop Work or Terminate*

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

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

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

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

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

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

18.02 *Computation of Times*

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

18.03 *Cumulative Remedies*

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

18.04 *Limitation of Damages*

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

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

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

18.09 *Successors and Assigns*

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

18.10 *Headings*

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

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SECTION 00 73 00
SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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

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

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

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

SC-1.01.A.50 Add the following at the end of the Paragraph:

A Work Change Directive cannot change Contract Price or Contract Times without a subsequent Change Order.

SC-1.01A.51 Add the following new paragraph after Paragraph 1.01.A.50:

Abnormal Weather Conditions - Conditions of extreme or unusual weather for a given region, elevation, or season as determined by Engineer. Extreme or unusual weather that is typical for a given region, elevation, or season should not be considered Abnormal Weather Conditions.

ARTICLE 2 - PRELIMINARY MATTERS

2.02 *Copies of Documents*

SC-2.02 Delete Paragraph 2.02.A in its entirety and insert the following new paragraph in its place:

A. Owner shall furnish to Contractor three (3) printed copies of conformed Contract Documents incorporating and integrating all Addenda and any amendments negotiated prior to the Effective Date of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies of the conformed Contract Documents will be furnished upon request at the cost of reproduction.

2.05 Acceptance of Schedules

SC-2.05.A.3 Add the following sentence to the end of Paragraph 2.05.A.3.: “Unit quantities and unit prices will be utilized for unit price work.”

2.06 Electronic Transmittals

SC-2.06 Delete Paragraph 2.06.B in its entirety and insert the following in its place:

B. *Electronic Documents Protocol*: The parties shall conform to the following provisions in Paragraph 2.06.B.

1. Basic Requirements

- a. To the fullest extent practical, the parties agree to and will transmit and accept Electronic Documents in an electronic or digital format using the procedures described in this Protocol. Use of the Electronic Documents and any information contained therein is subject to the requirements of this Protocol and other provisions of the Contract.
- b. The contents of the information in any Electronic Document will be the responsibility of the transmitting party.
- c. Electronic Documents as exchanged by this Protocol may be used in the same manner as the printed versions of the same documents that are exchanged using non-electronic format and methods, subject to the same governing requirements, limitations, and restrictions, set forth in the Contract Documents.
- d. Except as otherwise explicitly stated herein, the terms of this Protocol will be incorporated into any other agreement or subcontract between a party and any third party for any portion of the Work on the Project, or any Project-related services, where that third party is, either directly or indirectly, required to exchange Electronic Documents with a party or with Engineer. Nothing herein will modify the requirements of the Contract regarding communications between and among the parties and their subcontractors and consultants.
- e. When transmitting Electronic Documents, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the receiving party’s use of software application packages, operating systems, or computer hardware differing from those established in this Protocol.

- f. Nothing herein negates any obligation 1) in the Contract to create, provide, or maintain an original printed record version of Drawings and Specifications, signed and sealed according to applicable Laws and Regulations; 2) to comply with any applicable Law or Regulation governing the signing and sealing of design documents or the signing and electronic transmission of any other documents; or 3) to comply with the notice requirements of Paragraph 18.01 of the General Conditions.

2. *System Infrastructure for Electronic Document Exchange*

- a. Each party will provide hardware, operating system(s) software, internet, e-mail, and large file transfer functions (“System Infrastructure”) at its own cost and sufficient for complying with the EDP requirements. With the exception of minimum standards set forth in this EDP, and any explicit system requirements specified by attachment to this EDP, it is the obligation of each party to determine, for itself, its own System Infrastructure.
 - 1) The maximum size of an email attachment for exchange of Electronic Documents under this EDP is 20 MB. Attachments larger than that may be exchanged using large file transfer functions or physical media.
 - 2) Each Party assumes full and complete responsibility for any and all of its own costs, delays, deficiencies, and errors associated with converting, translating, updating, verifying, licensing, or otherwise enabling its System Infrastructure, including operating systems and software, for use with respect to this EDP.
- b. Each party is responsible for its own system operations, security, back-up, archiving, audits, printing resources, and other Information Technology (“IT”) for maintaining operations of its System Infrastructure during the Project, including coordination with the party’s individual(s) or entity responsible for managing its System Infrastructure and capable of addressing routine communications and other IT issues affecting the exchange of Electronic Documents.
- c. Each party will operate and maintain industry-standard, industry-accepted, ISO-standard, commercial-grade security software and systems that are intended to protect the other party from: software viruses and other malicious software like worms, trojans, adware; data breaches; loss of confidentiality; and other threats in the transmission to or storage of information from the other parties,

including transmission of Electronic Documents by physical media such as CD/DVD/flash drive/hard drive. To the extent that a party maintains and operates such security software and systems, it shall not be liable to the other party for any breach of system security.

- d. In the case of disputes, conflicts, or modifications to the EDP required to address issues affecting System Infrastructure, the parties shall cooperatively resolve the issues; but, failing resolution, the Owner is authorized to make and require reasonable and necessary changes to the EDP to effectuate its original intent. If the changes cause additional cost or time to Contractor, not reasonably anticipated under the original EDP, Contractor may seek an adjustment in price or time under the appropriate process in the Contract.
- e. Each party is responsible for its own back-up and archive of documents sent and received during the term of the contract under this EDP, unless this EDP establishes a Project document archive, either as part of a mandatory Project website or other communications protocol, upon which the parties may rely for document archiving during the specified term of operation of such Project document archive. Further, each party remains solely responsible for its own post-Project back-up and archive of Project documents after the term of the Contract, or after termination of the Project document archive, if one is established, for as long as required by the Contract and as each party deems necessary for its own purposes.
- f. If a receiving party receives an obviously corrupted, damaged, or unreadable Electronic Document, the receiving party will advise the sending party of the incomplete transmission.
- g. The parties will bring any non-conforming Electronic Documents into compliance with the EDP. The parties will attempt to complete a successful transmission of the Electronic Document or use an alternative delivery method to complete the communication.

SC-2.06.C. Delete Paragraph 2.06.C. and insert the following in its place:

- C. When Contractor transmits items in electronic media or digital format, the items shall be compatible with Engineer's software application packages, operating systems, and computer hardware.

ARTICLE 4 - COMMENCEMENT AND PROGRESS OF THE WORK

4.01 Commencement of Contract Times; Notice to Proceed

SC-4.01.A Amend the last sentence of Paragraph 4.01.A. to read as follows:

In no event will the Contract Times commence to run later than the thirtieth day after the Effective Date of the Contract.

4.05 Delays in Contractor’s Progress

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

5. *Weather-Related Delays*

- a. If “abnormal weather conditions” as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Times, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled, and 4) normal bad weather days in any given timeframe will not be considered “abnormal” for weather related delays.

ARTICLE 5 - SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS

5.03 Subsurface and Physical Conditions

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

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

Report Title	Prepared By	Date of Report	Technical Data
No reports.			

- F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground

Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Drawings Title	Prepared By	Date of Drawings	Technical Data
No Drawings.			

5.06 Hazardous Environmental Conditions

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

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

Report Title	Prepared By	Date of Report	Technical Data
No Reports			

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

Drawings Title	Prepared By	Date of Drawings	Technical Data
No Drawings			

ARTICLE 6 - BONDS AND INSURANCE

6.01 Performance, Payment, and Other Bonds

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

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

6.03 Contractor’s Insurance

SC-6.03 Add the following paragraphs immediately after Paragraph 6.03.C:

- The limits of liability for the insurance required by Paragraph 6.03 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:

State:	<u>Statutory</u>
Federal, if applicable (e.g., Longshoreman's):	<u>Statutory</u>

Employer's Liability:

Bodily injury, each accident	\$ <u>100,000</u>
Bodily injury by disease, each employee	\$ <u>100,000</u>
Bodily injury/disease aggregate	\$ <u>500,000</u>

For work performed in monopolistic states,
stop-gap liability coverage shall be endorsed to
either the worker's compensation or
commercial general liability policy with a
minimum limit of:

\$ 500,000

2. Contractor's Commercial General Liability Coverages:

General Aggregate	\$ <u>2,000,000</u>
Products – Completed Operations Aggregate	\$ <u>2,000,000</u>
Personal and Advertising Injury	\$ <u>1,000,000</u>
Each Occurrence (Bodily Injury and Property Damage)	\$ <u>1,000,000</u>

3. Automobile Liability Coverages:

Bodily Injury:

Each person	\$ <u>1,000,000</u>
Each accident	\$ <u>1,000,000</u>

Property Damage:

Each accident	\$ <u>500,000</u>
---------------	-------------------

[or]

Combined Single Limit of	\$ <u>1,000,000</u>
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4. Excess or Umbrella Liability:

Per Occurrence	\$ 5,000,000
General Aggregate	\$ 5,000,000

5. Contractor's Pollution Liability:

Each Occurrence	\$ N/A
General Aggregate	\$ N/A

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

6. Additional Insureds:

In addition to Owner (Town of Buchanan) and Engineer (Cedar Corporation), include as additional insureds the following: *None*, by endorsement as additional insureds.

7. The Owner will consider a policy with lower employer liability limits and a larger umbrella liability policy provided the Contractor can demonstrate that the umbrella policy provides equal or greater coverage than the basic requirement.

E. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:

1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
2. damages insured by reasonably available personal injury liability coverage, and
3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

F. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage.

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

6.04 *Builder's Risk and Other Property Insurance*

SC-6.04 Not required.

ARTICLE 7 - CONTRACTOR'S RESPONSIBILITIES

7.02 *Supervision and Superintendence*

SC-7.02 Add after last sentence in Paragraph 7.02 B.:

The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

7.03 *Labor; Working Hours*

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

2. Regular working hours will be 7:00 a.m. to 6:00 p.m.

7.07 *Concerning Subcontractors, Suppliers, and Others*

SC-7.07.A Amend Paragraph 7.07.A by adding the following text to the end of the Paragraph:

The Contractor shall not award work valued at more than fifty percent of the Contract Price to Subcontractor(s), without prior written approval of the Owner.

7.09 *Permits*

SC-7.09.A Add a new paragraph immediately after Paragraph GC-7.09 A:

- A. The Owner shall be responsible for obtaining the following permit(s):

None.

7.10 *Taxes*

SC-7.10 Add a new paragraph immediately after Paragraph 7.10.A:

- B. Contractor shall become aware of and comply with Sec. 77.54 (9m) Wis. Stats, which is effective as of January 1, 2016. The sale of and the storage, use, or other consumption of tangible personal property, or items or property sold to a construction contractor who, in fulfillment of a real property activity, transfers the tangible personal property, or items or property to local units of government such as a county, city, village, town, or school district, or to a nonprofit organization as part of constructing the

“facility”, is EXEMPT from the sales tax and the use tax. The “facility” means any building, shelter, parking lot, parking garage, athletic field, athletic park, storm sewer, water supply system or sewerage and waste water treatment facility, but does not include a highway, street, or road.

1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.
2. Owner’s exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

7.12 Record Documents

SC-7.12.A Add a new paragraph immediately after Paragraph 7.12.A:

- B. The Contractor shall excavate all points which are not adequately referenced on the Contractor’s copy of the annotated record documents at his own expense so necessary measurements can be made.

7.15 Emergencies

SC-7.15 Add a new paragraph immediately after Paragraph 7.15 A:

- B. In emergencies affecting the safety or protection of persons or property or maintenance of temporary construction at the site or adjacent thereto, and Contractor cannot be reached, Owner may act to attempt to prevent threatened damage, injury, or loss. Owner will give Contractor and Engineer prompt written notice of such action and the cost of the correction or remedy shall be charged against Contractor. A Change Order will be issued to document the change in Contract Price.

ARTICLE 9 - OWNER’S RESPONSIBILITIES

9.11 Evidence of Financial Arrangements

Delete Paragraph 9.11 in its entirety.

ARTICLE 10 - ENGINEER’S STATUS DURING CONSTRUCTION

10.03 Resident Project Representative

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

- C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:
1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor's safety meetings), and as appropriate prepare and circulate copies of minutes thereof.
 2. *Safety Compliance:* Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.
 3. *Schedules:* Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.
 4. *Liaison*
 - a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.
 5. *Review of Work; Defective Work*
 - a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Observe whether any Work in place appears to be defective.
 - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.

- d. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

6. *Inspections and Tests*

- a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work, and report details to Engineer.
- b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
- c. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.

7. *Interpretation of Contract Documents:* Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.

8. *Shop Drawings and Samples:*

- a. Record date of receipt of Samples and Contractor-approved Shop Drawings.
- b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.
- c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.

9. *Modifications:* Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions,

together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.

10. *Records:*

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

11. *Reports:*

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

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

13. *Certificates, Operation and Maintenance Manuals:* During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract

Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

14. *Completion*

- a. Participate in Engineer's visits regarding Substantial Completion.
- b. Assist in the preparation of a punch list of items to be completed or corrected.
- c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
- d. Observe whether items on the final punch list have been completed or corrected.

D. The RPR will not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.
5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 13 - COST OF WORK; ALLOWANCES, UNIT PRICE WORK

13.02 Allowances

SC-13.02.C. Delete Paragraph 13.02.C. in its entirety and insert the following in its place:

Deleted.

13.03 Unit Price Work

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

E. Adjustments in Unit Price

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the extended price of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

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

15.01 Progress Payments

SC-15.01.B.1 Amend the first sentence changing 20 days to 10 days.

SC-15.01.D.1 Amend the first sentence changing "Ten days" to "Twenty days".

15.02 Contractor's Warranty of Title

SC-15.02.A Amend paragraph by striking out the following text: "7 days after".

15.03 Substantial Completion

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

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

15.08 Correction Period

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

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

END OF SECTION

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SECTION 00 73 93
CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, _____, the duly authorized and acting legal representative of _____, do hereby certify as follows:

I have examined the attached Contract(s) and performance and payment bond(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements is adequate and has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions, and provisions thereof.

Date: _____

Note: Delete phrase "performance and payment bonds" when not applicable.

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SECTION 01 10 00
SUMMARY

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Summary of Work
 - a. Work Covered by Contract Documents
 - 2. Work Restrictions
 - a. Access to Site
 - b. Coordination with Occupants
 - c. Use of Site
 - d. Work in Rights-of-Way
 - e. Work Sequence
 - 3. Project Utility Sources

1.02 SUMMARY OF WORK

- A. Work Covered by Contract Documents
 - 1. Location: Springfield Park, located at intersection of Springfield Drive and Just About Lane, in the Town of Buchanan, WI.
 - 2. The Work includes:
 - a. Erosion Control
 - b. Trenching, backfilling and compacting
 - c. Drain tile
 - d. Culverts
 - e. Excavation and grading
 - f. Landscape restoration

1.03 WORK RESTRICTIONS

A. Access to Site

1. Access to the Site is limited to park property boundaries, right-of-ways, easements, and other areas designated in the Contract Documents.

B. Coordination with Occupants

1. Owner will occupy the premises during entire construction period, with the exception of areas under construction.
 - a. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage.
 - b. Perform the Work so as not to interfere with Owner's operations.
 - c. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
2. Coordinate and obtain concurrence for any utility service disruptions with affected occupants.
 - a. Coordinate and obtain concurrence for any access disruptions and access changes with affected occupants.
3. Coordinate and obtain concurrence for any disruption or relocation for mail service, garbage pick-up service, school bus service and any other normal occupant service with affected occupants.

C. Use of Site

1. General

- a. Contractor shall have full use of the Site for construction operations as allowed by law, ordinances, permits, easement agreements and the Contract Documents.
- b. Limit Use of the Site by Owner's right to perform work or to retain other contractors on portions of the Project.
- c. The Project Site is limited to property boundaries, rights-of-way, easements and other areas designated in the Contract Documents.

- d. Provide protection and safekeeping of material and products stored on or off the Site.
 - e. Move any stored material or products that interfere with operations of Owner or other Contractors.
2. Use of the Site
- a. Limit use of premises to areas within the Contract limits.
 - b. Do not disturb portions of Project Site beyond areas in the indicated Work.
 - c. Confine construction operations to limits shown on the Drawings.
 - d. Allow for Owner occupancy of Project site and use by the public.
 - e. Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - f. Coordinate and obtain concurrence for any utility service disruptions with affected property owners.
 - g. Coordinate and obtain concurrence for any access disruptions and access changes with affected property owners.
 - h. Coordinate and obtain concurrence for any disruption or relocation for mail service, garbage pick-up service, school bus service and any other normal occupant service with affected property owners.
- D. Work in Rights-of-Way
- 1. Keep driveways, loading areas, and entrances serving premises clear and available to residents and emergency vehicles at all time. Do not use these areas for parking or storage of materials.
 - 2. Continuously keep rights- of- way, storage areas, streets, roads, highways and adjacent properties free from accumulations of waste materials, excess excavation, rubbish and windblown debris resulting from construction operations.

3. Broom or water clean paved surfaces and remove surplus materials, tools, construction equipment and machinery as each work area is completed.
 4. Protect and avoid damage within the work area.
 - a. Protect and avoid damage to trees or shrubbery within the work area not designated for removal.
 - b. Adequately close and protect all excavations, equipment, and materials stored within the Site of the Project.
 - c. Do not interfere with or create any hazards to traffic.
 - d. Control dust on all roads, drives, walkways, and parking areas.
 - e. Provide protection of all existing equipment located throughout the Project area.
 5. Public Relations
 - a. Where operations of the Contractor require personal contact with the public, the Contractor and all his employees shall act in a courteous and respectful manner when in contact with the public.
 - b. Provide all means necessary to control dust on and near the work, including off-site borrow and stockpile areas as required to prevent dust from being a nuisance to the public, neighbors, and concurrent performance of other work on the Site.
 - c. Minimize interference with traffic.
 - d. Provide and maintain ingress and egress for all residents along the construction route.
 - e. Notify all local emergency services, school districts, and other public agencies with regard to access, control and maintenance of traffic in the work area.
 - f. Obey and follow all posted speed limits.
- E. Work Sequence
1. Perform Construction Work sequencing as required to meet the Contract Times and Milestones stated in the Agreement.
 2. Provide access to properties affected by the construction activities.

3. Protect road surfaces from damage and debris outside the construction Site and the areas not scheduled for replacement.
4. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
5. Do not interrupt delivery of mail service, garbage pickup, school buses, emergency vehicles and other normal municipal operations.
6. One road lane shall remain open to traffic at all times.

1.04 PROJECT UTILITY SOURCES

A. Roads and Storm Sewer

1. Town of Buchanan
Attn: Dennis Jandrey, Engineering Technician
N178 County Road N
Appleton, WI 54915
(920) 734-8599 (office) or (920) 931-5410 (cell)

B. Water and Sewer

1. Darboy Joint Sanitary District
Attn: Pat Hennessey
N398 County Road N
Appleton, WI 54915
(920) 788-6048
(920) 419-2611 (cell)

C. Gas and Electric

1. WE Energies – Gas
Attn: Cody Beckman, Energy Services Consultant (Gas)
P.O. Box 1699, 800 S. Lyndale Drive
Appleton, WI 54912-1699
(920) 380-3422
Emergency Hotline: (800) 261-5325 (Gas)
2. WE Energies – Electric
Attn: Zach Duga, Energy Services Consultant (Electric)
P.O. Box 1699, 800 S. Lyndale Drive
Appleton, WI 54912-1699
(920) 380-3458
Emergency Hotline: (800) 662-4797 (Electric)

D. Cable

1. Charter Communications
Attn: Vince Albin
3520 Destination Drive
Appleton, WI 54915
(920) 831-9249
(920) 378-0444 (cell)

E. Telephone

1. AT & T
Attn: Kyle Weber, Manager OSP Planning & Engineering Design
221 W. Washington Street
Appleton, WI 54911
(920) 221-5969
kw715w@att.com

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 22 01
UNIT PRICES – TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes:
1. Temporary Vehicular Access and Parking
 - a. Traffic Control
 2. Temporary Controls
 - a. Temporary Erosion and Sediment Control
 - (1) Rock Filled Filter Bags
 - (2) Temporary Stone Tracking Pad
- B. Unit Prices include:
1. Defined work for each Unit Price Item that will provide a functionally complete Project when combined with all Unit Price Items. If there are specific work items that the Contractor believes not identified in any Unit Price Item, but is required to provide a functionally complete Project, then the identified specific work items shall be included in the appropriate Unit Price Item.
 2. The method of measurement for payment.
 3. The price per unit for payment.

1.02 GENERAL WORK ITEMS

- A. Include with the appropriate Unit Price Item of the following work items common to the Unit Price Items unless there is a specific Unit Price Item for the Work, then include with that specific Unit Price Item.
1. Mobilization of personnel, equipment, supplies, and incidentals required to complete the Work.
 2. Project Management and Coordination
 3. Photographic Documentation

4. Submittal Procedures
5. Quality Requirements
6. Temporary Facilities and Controls
7. Field Engineering
8. Equipment Installation
9. Cutting and Patching
10. Starting and Adjusting
11. Closeout Procedures
12. Operation and Maintenance Documentation
13. Project Record Documents
14. Demonstration and Training
15. Selective Site Demolition and Utilities Abandonment
16. Trenching and Backfill
17. Subsurface exploration for locating existing utilities
18. Pipe bedding
19. Maintenance, protection, replacement and/or repair of facilities not designated for alteration on the Site.
20. If crossing or undermining of existing public or private utility, then include:
 - a. Maintaining the utility in service.
 - b. Replacing of existing utilities, if damaged.
 - c. Providing support and bedding material.
 - d. Trench maintenance.

1.03 TEMPORARY VEHICULAR ACCESS AND PARKING

A. Traffic Control

1. The unit price for Traffic Control work includes:
 - a. General Work Items of Article 1.02.
 - b. Obtaining permits.
 - c. Notifications.
 - d. Barricades.
 - e. Traffic control flag personnel.
 - f. Signing.
2. Measurement for payment will not be made.
3. The unit of measurement for payment is lump sum.

1.04 TEMPORARY CONTROLS

A. Temporary Erosion and Sediment Control

1. Rock Filled Filter Bags
 - a. The unit price for Rock Filled Filter Bags for Erosion Control work includes:
 - (1) General Work Items on Article 1.02.
 - (2) Provide HDPE bags filled with aggregate material.
 - (3) Provide anchor stakes.
 - (4) Excavate and embed the bags.
 - (5) Inspection and maintenance of the bags.
 - (6) Removal of the bags.
 - (7) Finish grading.
 - (8) Seed, fertilize, and mulch area around the removed erosion bags that does not have established turf.

b. Measurement for payment will be the actual number of locations specified on plan (the Drawings). There shall be five (5) bags installed at each location.

c. The unit of measurement for payment is each location.

2. Temporary Stone Tracking Pad

a. The unit price for Temporary Stone Tracking Pad includes:

(1) General Work Items of Article 1.02.

(2) Install to the dimensions as shown on the Drawings.

(3) Providing filter fabric.

(4) Providing crushed aggregate base course (3" clear stone).

(5) Daily maintenance of aggregate.

(6) Removal of aggregate and restore with topsoil, seed, fertilizer, and mulch.

b. Measurement for payment shall be the actual number installed, except 25% of payment will be withheld until removal is completed and turf is restored.

c. The unit of measurement for payment is each.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 22 03
UNIT PRICES - DEMOLITION AND STRUCTURE MOVING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Demolition
 - a. Selective Site Demolition and Utilities Abandonment
 - (1) Demolition and Removal of Miscellaneous Playground Equipment Items
 - 2. Salvage and Deliver Concrete Barricades to Town Yard Waste Site
- B. Unit Prices include:
 - 1. Defined work for each Unit Price Item that will provide a functionally complete Project when combined with all Unit Price Items. If there are specific work items that the Contractor believes not identified in any Unit Price Item, but is required to provide a functionally complete Project, then the identified specific work items shall be included in the appropriate Unit Price Item.
 - 2. The method of measurement for payment.
 - 3. The price per unit for payment.

1.02 GENERAL WORK ITEMS

- A. Include with the appropriate Unit Price Item the following work items common to the Unit Price Items unless there is a specific Unit Price Item for the Work, then include with that specific Unit Price Item.
 - 1. Mobilization of personnel, equipment, supplies, and incidentals required to complete the Work.
 - 2. Project Management and Coordination
 - 3. Photographic Documentation
 - 4. Submittal Procedures
 - 5. Quality Requirements

6. Temporary Facilities and Controls
7. Field Engineering
8. Equipment Installation
9. Cutting and Patching
10. Starting and Adjusting
11. Closeout Procedures
12. Operation and Maintenance Documentation
13. Project Record Documents
14. Demonstration and Training
15. Selective Site Demolition and Utilities Abandonment
16. Trenching and Backfill
17. Subsurface exploration for locating existing utilities
18. Pipe bedding
19. Connecting to existing system
20. Maintenance, protection, replacement and/or repair of facilities not designated for alteration on the Site.
21. If crossing or undermining of existing public or private utility, then include:
 - a. Maintaining the utility in service.
 - b. Replacing of existing utilities, if damaged.
 - c. Providing support and bedding material.
 - d. Trench maintenance.

1.03 DEMOLITION

- A. Selective Site Demolition and Utilities Abandonment
 1. Demolition and Removal of Miscellaneous Playground Equipment Items

- a. The unit price Demolition and Removal of Miscellaneous Playground Equipment Items work includes:
 - (1) General Work Items of Article 1.02.
 - (2) Excavation and topsoil stripping.
 - (3) Breaking up and removal of designated items.
 - (4) Hauling and disposal of designated items.
 - (5) Removal and disposal of all concrete foundation materials.
 - (6) Remove and disposal of all wood chips/mulch in designated areas.
 - (7) Clean fill material.
 - (8) Backfilling and compacting.
- b. Measurement for payment will not be made.
- c. The unit of measurement for payment is lump sum.

1.04 SALVAGE AND DELIVER CONCRETE BARRICADES TO YARD WASTE SITE

- A. The unit price for Salvage and Deliver Concrete Barricades to Yard Waste Site work includes:
 - 1. General Work Items of Article 1.02.
 - 2. Salvage Three (3) Existing Concrete Barricades.
 - 3. Delivery to Town Yard Waste Transfer Site at N124 County Road N., Appleton, WI 54915.
 - 4. Loading and Unloading Concrete Barricades.
- B. Measurement for payment will not be made.
- C. The unit of measurement for payment is lump sum.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 01 22 04
UNIT PRICES - EARTHWORK

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Clearing and Grubbing – Remove Existing Stumps
- B. Unit Prices include:
 - 1. Defined work for each Unit Price Item that will provide a functionally complete Project when combined with all Unit Price Items. If there are specific work items that the Contractor believes not identified in any Unit Price Item, but is required to provide a functionally complete Project, then the identified specific work items shall be included in the appropriate Unit Price Item.
 - 2. The method of measurement for payment.
 - 3. The price per unit for payment.

1.02 GENERAL WORK ITEMS

- A. Include with the appropriate Unit Price Item the following work items common to the Unit Price Items unless there is a specific Unit Price Item for the Work, then include with that specific Unit Price Item.
 - 1. Mobilization of personnel, equipment, supplies, and incidentals required to complete the Work.
 - 2. Project Management and Coordination
 - 3. Photographic Documentation
 - 4. Submittal Procedures
 - 5. Quality Requirements
 - 6. Temporary Facilities and Controls
 - 7. Field Engineering
 - 8. Equipment Installation

9. Cutting and Patching
10. Starting and Adjusting
11. Closeout Procedures
12. Operation and Maintenance Documentation
13. Project Record Documents
14. Demonstration and Training
15. Selective Site Demolition and Utilities Abandonment
16. Trenching and Backfill
17. Subsurface Exploration for Locating Existing Utilities
18. Pipe Bedding
19. Connecting to Existing System
20. Maintenance, protection, replacement and/or repair of facilities not designated for alteration on the Site.
21. If crossing or undermining of existing public or private utility, then include:
 - a. Maintaining the utility in service.
 - b. Replacing of existing utilities, if damaged.
 - c. Providing support and bedding material.
 - d. Trench maintenance.

1.03 CLEARING AND GRUBBING – REMOVE EXISTING STUMPS

- A. The unit price for Clearing and Grubbing – Remove Existing Stumps work includes:
 1. General Work Items of Article 1.02.
 2. Preparation and protection.
 3. Excavation.
 4. Removing and disposing of roots, stumps, and other timber.

5. Clean fill material.
 6. Backfill and compaction.
- B. Measurement for payment will be the actual number of stumps removed.
- C. The unit of measurement for payment is each.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 01 22 05
UNIT PRICES – EXTERIOR IMPROVEMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Aggregate Base Courses
 - a. Crushed Aggregate Base Course – Parking Area/ Culvert/ Fill Area
 - 2. Turf and Grasses
 - a. Landscape Restoration
- B. Unit Prices include:
 - 1. Defined work for each Unit Price Item that will provide a functionally complete Project when combined with all Unit Price Items. If there are specific work items that the Contractor believes not identified in any Unit Price Item, but is required to provide a functionally complete Project, then the identified specific work items shall be included in the appropriate Unit Price Item.
 - 2. The method of measurement for payment.
 - 3. The price per unit for payment.

1.02 GENERAL WORK ITEMS

- A. Include with the appropriate Unit Price Item the following work items common to the Unit Price Items unless there is a specific Unit Price Item for the Work, then include with that specific Unit Price Item.
 - 1. Mobilization of personnel, equipment, supplies, and incidentals required to complete the Work.
 - 2. Project Management and Coordination
 - 3. Photographic Documentation
 - 4. Submittal Procedures
 - 5. Quality Requirements

6. Temporary Facilities and Controls
7. Field Engineering
8. Cutting and Patching
9. Closeout Procedures
10. Project Record Documents
11. Selective Site Demolition and Utilities Abandonment
12. Erosion and Sedimentation Controls
13. Landscaping - turf establishment surface restoration and trees and bushes damaged during construction
14. Maintenance, protection, replacement and/or repair of facilities not designated for alteration on the Site.

1.03 AGGREGATE BASE COURSES

- A. Crushed Aggregate Base Course – Parking Area/ Culvert/ Fill Area
 1. The unit price for Crushed Aggregate Base Course – Parking Area/ Culvert/ Fill Area work includes:
 - a. General Work Items of Article 1.02.
 - b. Excavation and topsoil stripping.
 - c. Aggregate material.
 - d. Preparation of foundation.
 - e. Placing and compacting to thickness and width shown on the Drawings or specified elsewhere.
 2. Measurement for payment will be the actual weight of material placed.
 3. The unit of measurement for payment is Ton.

1.04 LANDSCAPE RESTORATION

- A. Landscape Restoration – Topsoil, Seed, Fertilizer, Erosion Mat

1. The unit price for Landscape Restoration – Topsoil, Seed, Fertilizer, Erosion Mat work includes:
 - a. General Work Items of Article 1.02.
 - b. Site preparation.
 - c. Topsoiling
 - d. Seeding.
 - e. Fertilizing.
 - f. Erosion mat.
 - g. Maintenance and monitoring.
2. Measurement for payment will not be made.
3. The unit of measurement for payment is lump sum.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 01 22 10
UNIT PRICES – STORMWATER UTILITIES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Perforated Pipe Underdrains / Drain Tile
 - 2. Culvert Pipe
 - a. Culvert Pipe
 - 3. Flared End Sections
 - 4. PVC Yard Drains
 - 5. Tracer Wire Signal Connection Box
- B. Unit Prices include:
 - 1. Defined work for each Unit Price Item that will provide a functionally complete Project when combined with all Unit Price Items. If there are specific work items that the Contractor believes not identified in any Unit Price Item, but is required to provide a functionally complete Project, then the identified specific work items shall be included in the appropriate Unit Price Item.
The method of measurement for payment.
 - 2. The price per unit for payment.

1.02 GENERAL WORK ITEMS

- A. Include with the appropriate Unit Price Item the following work items common to the Unit Price Items unless there is a specific Unit Price Item for the Work, then include with that specific Unit Price Item.
 - 1. Mobilization of personnel, equipment, supplies, and incidentals required to complete the Work.
 - 2. Project Management and Coordination
 - 3. Photographic Documentation
 - 4. Submittal Procedures

5. Quality Requirements
6. Temporary Facilities and Controls
7. Field Engineering
8. Equipment Installation
9. Cutting and Patching
10. Starting and Adjusting
11. Closeout Procedures
12. Operation and Maintenance Documentation
13. Project Record Documents
14. Demonstration and Training
15. Selective Site Demolition and Utilities Abandonment
16. Trenching and Backfill
17. Subsurface exploration for locating existing utilities
18. Pipe bedding
19. Connecting to existing system
20. Maintenance, protection, replacement and/or repair of facilities not designated for alteration on the Site.
21. If crossing or undermining of existing public or private utility, then include:
 - a. Maintaining the utility in service.
 - b. Replacing of existing utilities, if damaged.
 - c. Providing support and bedding material.
 - d. Trench maintenance.

1.03 PERFORATED PIPE UNDERDRAINS / DRAIN TILE

- A. The unit price for Perforated Pipe Underdrains / Drain Tile work includes:

1. General Work Items of Article 1.02.
 2. Excavation and topsoil stripping.
 3. Perforated storm sewer pipe and fittings of material stated in the Unit Price Bid Schedule, and installed using the open trench method.
 4. Screened stone and filter fabric around the perforated pipe.
 5. Screened stone backfill.
- B. Measurement for payment will be the actual horizontal length of perforated pipe along the centerline of the installed perforated sewer pipe.
- C. The unit of measurement for payment is linear feet.

1.04 CULVERT PIPE

- A. Culvert Pipe
1. The unit price for Culvert Pipe work includes:
 - a. General Work Items of Article 1.02.
 - b. Excavation and topsoil stripping.
 - c. Culvert pipe of material stated in the Unit Price Bid Schedule and installed using the open trench method.
 2. Measurement for payment will be the actual horizontal length along the centerline of the installed culvert pipe. Flared end sections, headwalls, endwalls and spillways will not be included in the measurement for payment.
 3. The unit of measurement for payment is linear feet.

1.05 FLARED END SECTION

- A. The unit price for Flared End Section work includes:
1. General Work Items of Article 1.02.
 2. Precast concrete components.
 3. Anchors to storm sewer pipe.
 4. Filter fabric and riprap at flared end section.

5. Pipe grates when specified.
- B. Measurement for payment will be the actual number installed.
- C. The unit of measurement for payment is each.

1.06 PVC YARD DRAINS

- A. The unit price for PVC Yard Drains work includes:
 1. General Work Items of Article 1.02.
 2. PVC yard drain components.
 3. Metal Grate.
 4. Bedding Material.
 5. Sewer pipe stub watertight plug (where required).
- B. Measurement for payment will be the actual number installed.
- C. The unit for measurement for payment is each.

1.07 TRACER WIRE SIGNAL CONNECTION BOX

- A. The unit price for Tracer Wire Signal Connection Box work includes:
 1. General Work Items of Article 1.02.
 2. Tracer Wire.
 3. Providing and installing tracer wire signal connection box.
- B. Measurement for payment will be the actual number installed.
- C. The unit of measurement for payment is each.

PART 2 - MATERIALS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

**SECTION 01 29 00
PAYMENT PROCEDURES**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Administrative and procedural requirements to prepare and process Applications for Payment.

1.02 SCHEDULE OF VALUES

- A. Unit Price Bid Schedule shall be the Schedule of Values used as the basis for reviewing Applications for Payment.

1.03 APPLICATIONS FOR PAYMENT

- A. Provide each Application for Payment consistent with previous applications and payments as recommended by the Engineer and approved by Owner.
- B. Submittal times for progress payments shall be as determined at the Preconstruction Conference. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends 10 days before the date for each progress payment.
- C. Requests for progress payments shall be at least 10 days before the date established for each progress payment, but not more often than once a month.
- D. Use forms provided by Engineer for applications for payment. Sample copy of the Application for Payment and Continuation Sheet is included in Section 00 62 76 Application for Payment Form.
- E. Application Preparation Procedures
 - 1. Unit Price Contract Work
 - a. When requested by the Contractor, the Engineer will determine the actual quantities and classifications of Unit Price Work performed.
 - b. Engineer will review preliminary determinations with the Contractor before completing Application for Payment.
 - c. Engineer will complete the Application for Payment based on Engineer's decision on actual quantities and classifications.

- d. Engineer will submit three (3) original copies of Application for Payment to Contractor for certification of all three (3) original copies.
 - e. Contractor shall submit signed Application for payment to Owner, through Engineer, for approval within time frame agreed to at the Preconstruction Conference.
- F. With each Application for Payment, submit waivers of liens from subcontractors and suppliers for the construction period covered by the previous application.
 - 1. Submit partial waivers on each item for amount requested before deduction for retainage on each item.
 - 2. When an application shows completion for an item, submit final or full waivers.
 - 3. Owner reserves the right to designate which entities involved in the Work shall submit waivers.
 - 4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application.
 - 5. Submit waivers of lien on forms executed in a manner acceptable to Owner.
- G. The following administrative actions and submittals shall precede or coincide with submittal of first Application for Payment:
 - 1. List of subcontractors.
 - 2. Schedule of Values.
 - 3. Contractor's construction schedule.
 - 4. Copies of permits.
 - 5. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
- H. Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted including, but not limited, to the following:
 - 1. Evidence of completion of Project closeout requirements.

2. Insurance certificates for products and completed operations where required and proof that taxes, fees and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. Consent of Surety to Final Payment.
5. Final lien waivers as evidence of settled claims.
6. Final liquidated damages settlement statement.

PART 2 - MATERIALS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 01 31 00
PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Project Coordination
 - 2. Preconstruction Meetings
 - 3. Progress Meetings
 - 4. Electronic Communication Protocols

1.02 PROJECT COORDINATION

- A. Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work.
- B. Coordinate construction operations that depend on each other for proper installation, connection, and operation.
- C. Coordinate scheduling and timing of required administrative procedures with construction activities and activities of other contractors (where applicable) to avoid conflicts and to ensure orderly progress of the Work.
- D. Coordinate the Work according to the requirements of the General Conditions. Do not delegate responsibility for coordination to any subcontractor.
 - 1. Anticipate the interrelationship of all subcontractors and their relationship with the total Work.
 - 2. Resolve differences or disputes between subcontractors and material suppliers concerning coordination, interference, or extent of work between Specification Sections.
 - a. The Contractor's decisions, if consistent with the Contract Documents, shall be final.
 - b. Engineer will not coordinate work between Specification Sections.

3. Coordinate the work of subcontractors and material suppliers, so that their work is performed in a manner to minimize interference with, and to facilitate the progress of the work.
- E. Coordinate utility and building services shutdowns, interruptions and closures of vehicular and pedestrian thoroughfares, including access to buildings and parking areas, to minimize disruption of private and site activities.
- F. Provide layout, scheduling and sequencing of the Work.
 1. Verify, confirm and coordinate field measurements so that new construction correctly and accurately interfaces with conditions existing prior to construction.
 2. Bring together the various parts, components, systems and assemblies as required for the correct interfacing and integration of all elements of the Work.
 3. Coordinate Work to correctly and accurately connect abutting, adjoining, overlapping and related elements, including work under separate contracts.

1.03 PRECONSTRUCTION MEETINGS

- A. Engineer will schedule and facilitate a preconstruction conference within 20 days after the Contract Times start to run and before Work at the site starts.
- B. Authorized representatives of the Owner, Engineer, Contractor and its superintendent; major subcontractors; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to make binding decisions of matters relating to the Work.
- C. The purpose of the Preconstruction Conference is to:
 1. Establish a working understanding among the parties as to the Work.
 2. Discuss the following preliminary schedules prepared by the Contractor.
 - a. Progress schedule.
 - b. Shop drawing and sample submittals.
 - c. Schedule of values for all of the Work.
 3. Processing Applications for Payment.

4. Maintaining required records.
5. Other Project requirements.

1.04 PROGRESS MEETINGS

- A. The Engineer will schedule and facilitate progress meetings at the Project site at regular intervals.
- B. In addition to representatives of the Owner, the Engineer and the Contractor, each subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with the Project and authorized to make binding decisions on matters relating to the Work.
- C. Items of significance will be reviewed that could affect progress.
 1. Review progress since the last meeting.
 - a. Determine where each activity is in relation to the Contractor's construction schedule, whether on time or ahead or behind schedule.
 - b. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so.
 - c. Discuss whether scheduled revisions are required to insure that current and subsequent activities will be completed within the Contract Time.
 2. Review the present and future needs of each entity present, including the following:
 - a. Interface requirements.
 - b. Time.
 - c. Sequences.
 - d. Status of submittals.
 - e. Deliveries.
 - f. Off-site fabrication problems.
 - g. Access.

- h. Site utilization.
 - i. Temporary facilities and services.
 - j. Hours of work.
 - k. Hazards and risks.
 - l. Housekeeping.
 - m. Quality and work standards.
 - n. Change orders.
 - o. Documentation of information for payment requests.
- D. Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule within 5 days after each meeting.

1.05 ELECTRONIC COMMUNICATION PROTOCOLS

- A. The Engineer will use electronic means of communication related to the Contractor's correspondence, Submittals, Requests for Information (RFI), Progress Payment Requests, and Non-Compliance Issues via Internet-based software.
- B. The Contractor shall use this electronic communication for administrative communications with the Engineer.
- C. The Contractor shall be responsible for frequent monitoring of the electronic means from the Engineer.
- D. The use of the electronic means of communication does not waive the requirement for the provision of hard copies of all formal correspondence, submittals and RFIs. All hard copies of documents shall match the electronic copies.
- E. In order to process formal correspondence and other required documentation, the Contractor shall have in place the required basic components outlined as follows:
 - 1. Use computer hardware that meets the requirements of electronic means of communication.
 - 2. Software to be compatible with the Engineer's standards.

- F. Contractor shall be responsible for providing all computers, printers, plotters, scanners or other hardware and software for the Contractor's use.
- G. Provide all networking equipment and associated cabling within the Contractor's office.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 32 33
PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes
 - 1. Preconstruction Photographs

1.02 SUBMITTALS

- A. Informational Submittals
 - 1. Submit photographs and/or video recordings to Engineer prior to start of construction.
 - 2. Digital Photographs. Submit image files within three (3) days of taking photographs.
 - a. Photographs shall be digital format, color photos with a minimum resolution of 2048 x 1536 pixels (requiring a minimum camera resolution of 3.1 megapixels).
 - b. Submit photos as unaltered digital files with same aspect ratio as the camera sensor, uncropped, date and time stamped in folder named by date of photograph.
 - c. Image file names shall include information specific to location, such as street name, street number, and compass direction of vantage point.
 - d. Provide the following information with each image description in file metadata tag:
 - (1) Name of Project.
 - (2) Name and contact information for photographer.
 - (3) Name of Engineer.
 - (4) Name of Contractor.
 - (5) Date photograph taken.

- (6) Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction, if building.
- (7) Unique sequential identifier keyed to accompanying key plan.

3. Video Recordings

- a. Submit video recordings within seven days of recording.
- b. Submit video recordings in digital video disc format acceptable to Engineer.
- c. With each submittal, provide the following information:
 - (1) Name of Project.
 - (2) Name and address of photographer.
 - (3) Name of Engineer.
 - (4) Name of Contractor.
 - (5) Date video recording completed.
 - (6) Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction, if building.
 - (7) Description of unusual or significant features.
 - (8) Weather conditions at time of recording.
- d. Provide a transcript prepared on 8½ by 11-inch paper, punched and bound in heavy-duty, three-ring, vinyl-covered binders.
 - i) Mark appropriate identification on front and spine of each binder.
 - ii) Include a cover sheet with same label information as corresponding video recording.
 - iii) Include name of Project and date of video recording on each page.

1.03 QUALITY ASSURANCE

- A. Photographer shall be an individual who has performed photographs and video recordings of construction projects for not less than three years.

1.04 USAGE RIGHTS

- A. Obtain and transfer copyright usage rights to Owner and Engineer for unlimited reproduction of photographic documentation.

PART 2 - PRODUCTS

2.01 PHOTOGRAPHIC MEDIA

- A. Provide digital images in JPG or TIF format on a data USB Flash Drive.
 - 1. Images shall be contained in separate folders for each day photos taken.
 - 2. If required by the Engineer, provide additional folders to differentiate between project phases or physical areas of construction activity.
- B. Digital Video Recordings
 - 1. Provide digital video recordings in high-resolution, digital video disc.

PART 3 - EXECUTION

3.01 PRECONSTRUCTION PHOTOGRAPHS

- A. Preconstruction Photographs
 - 1. Before starting construction, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Engineer.
 - 2. Flag construction limits or excavation areas before taking construction photographs.
 - 3. Take sufficient number of photographs to show existing conditions adjacent to property before starting the Work.
 - 4. Take sufficient number of photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
 - 5. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

3.02 PRECONSTRUCTION VIDEO RECORDINGS

- A. Preconstruction Video Recording
1. Before starting construction, record video recording of Project site and surrounding properties from different vantage points, as directed by Engineer.
 2. Flag utility locations before recording construction video recordings.
 3. Show existing conditions adjacent to Project site before starting the Work.
 4. Show existing buildings either on or adjoining Project site to accurately record physical conditions at the start of construction.
 5. Show protection efforts by Contractor.

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Types of Submittals
 - 2. Submittal Procedures
 - 3. Submittal of Schedules
 - 4. Action Submittal Procedures
 - 5. Informational Submittal Procedures
 - 6. Transmittal of Submittals

1.02 TYPES OF SUBMITTALS

- A. General
 - 1. Submittals are categorized by the type of action or by sequence of construction.
 - 2. The following identifies the types of submittal designated in the respective Specification Sections.
 - 3. Schedules and Action Submittals require action by the Engineer.
 - 4. Informational Submittals do not require action by the Engineer other than to determine if complete, sufficient and results meet specified requirements.
- B. Schedules include:
 - 1. Progress Schedule
 - 2. Schedule of Submittals
 - 3. Schedule of Values
- C. Action Submittals include:
 - 1. Product Data

2. Shop Drawings
 3. Samples
 4. Delegated Design Submittals
 - a. Delegated design submittals, which include documents prepared, sealed, and signed by a design professional properly licensed in the jurisdiction of the Project and retained by Contractor, Subcontractor, or Supplier for materials and equipment incorporated into the completed Work.
 - b. Delegated design submittals do not include submittals related to temporary construction unless specified otherwise in the related Specification Section.
 - c. Delegated design submittals include: design drawings, design data including calculations, specifications, certifications, and other submittals prepared by such design professional.
- D. Informational Submittals
1. Certificates
 2. Test and Evaluation Reports
 3. Manufacturers' Instructions
 4. Source Quality Control Submittals
 5. Field or Site Quality Control Submittals
 6. Manufacturer Reports
 7. Sustainable Design Submittals
 8. Special Procedure Submittals
 9. Qualification Statements
 10. Design data not sealed and signed by a design professional retained by Contractor, Subcontractor, or Supplier.
 11. Preconstruction Photo Documentation

12. Pre-construction test and evaluation reports, such as reports on pilot testing, subsurface investigations, potential Hazardous Environmental Condition, and similar reports.
13. Manufacturer/Supplier instructions, including installation data, and instructions for handling, starting-up, and troubleshooting.
14. Closeout Submittals.
15. Maintenance Material Submittals.

1.03 SUBMITTAL OF SCHEDULES

A. General

1. Prepare and submit for Engineer's review preliminary Progress Schedule, Schedule of Submittals and Schedule of Values (lump sum contracts) within 10 days after the Effective Date of the Agreement and prior to the Preconstruction Conference.
2. At least 10 days before submission of the first Application for Payment, attend a conference with the Engineer to review acceptability of the submitted preliminary schedules. If Contractor submits schedules to Engineer for review 10 days before the Preconstruction Conference, then the schedule review conference will occur at the Preconstruction Conference.
3. Within 10 days after the conference for determining acceptability of schedules, make corrections and adjustments, complete and resubmit schedules to Engineer to determine acceptability.
4. Provide three (3) copies of schedules for each submission to Engineer.

B. Contractor's Progress Schedule

1. Progress Schedule period starts at Notice to Proceed and ends at Substantial Completion.
2. Provide sufficient detail of the work activities comprising the schedule to assure adequate planning and execution of the work, such that in the judgement of the Engineer, it provides an appropriate basis for monitoring and evaluation of the progress of the Work. A work activity is defined as an activity which requires substantial time and resources (manpower, equipment and/or material) to complete and is required to be performed before the contract is considered complete.

3. The schedule shall indicate the sequence of work activities. Identify each activity with a description, start date, completion date and duration. Include, but do not limit to the following items, as appropriate to this contract:
 - a. Shop drawing review by the Engineer.
 - b. Material and Equipment:
 - (1) Order.
 - (2) Manufacture.
 - (3) Delivery.
 - (4) Installation.
 - (5) Startup.
 - (6) Operation and maintenance training
 - c. Performance tests and supervisory service activities.
 - d. Excavation and grading.
 - e. Concrete placement sequence.
 - f. Construction of various facilities.
 - g. Construction of various segments of utilities.
 - h. Subcontractor's items of work.
 - i. Allowance for inclement weather.
 - j. Contract interfaces, date of Substantial Completion.
 - k. Interfacing and sequencing with existing facilities and utilities.
 - l. Sequencing of major construction activities.
 - m. Milestones and completion dates.
4. Schedule Updating
 - a. Revise the Progress Schedule after each meeting, event, or activity where schedule changes have been recognized or made.

- b. Revised Progress Schedule shall present adjusted Work to meet milestones and Substantial Completion.
 - c. Submit revised Progress Schedule to Engineer for acceptance.
 - C. Schedule of Shop Drawing and Sample Submittals
 - 1. Coordinate Shop Drawing and Sample Schedule with subcontractors, suppliers, Schedule of Values, and Progress Schedule.
 - 2. Prepare the schedule in chronological order. Provide the following information:
 - a. Scheduled date for each Shop Drawing and Sample submittal.
 - b. Related Specification Section number.
 - c. Name of the subcontractor or supplier.
 - d. Description of the part of the Work covered.
 - e. Scheduled date for the Engineer's final release or approval for each Shop Drawing and Sample submittal.
 - D. Schedule of Values
 - 1. Unit Price Bid Schedule shall be the Schedule of Values for the basis of progress payments.

1.04 ACTION SUBMITTAL PROCEDURES

- A. Submittal Identification System
 - 1. Use submittal identification system, consisting of Specification Section number, submittal number and resubmittal number.
 - 2. Use Specification Section number for items submitted within that section.
 - 3. Use submittal number for each submittal associated with items in that section; e.g. submittal number 1 could have 2 items from the Specification Section and submittal number 2 could have 3 additional items from the Specification Section.
 - 4. Use resubmittal number for items being resubmitted; e.g. submittal number 1 may require resubmittal, therefore, the number is Specification Section, submittal number 1, and resubmittal number 1. For subsequent resubmittals, add a consecutive number.

- B. Action Submittal Transmittal Form
1. Provide separate completed Action Submittal with each submittal.
 2. Use the Action Submittal as attached to this Specification Section.
 3. Use separate transmittal form for each Specification Section and each submittal.
 4. Provide detailed description of the submittal on the Action Submittal.
 5. If there are any variations that a Shop Drawing or Sample may have from the requirements of the Contract Documents, then submit with the submittal a separate written communication to Engineer providing notice of any variations.
- C. Contractor's Approval of Action Submittals
1. Before submitting Action Submittals to Engineer, Contractor shall:
 - a. Review and coordinate the submittal with other Action Submittals and with the requirements of the Work and the Contract Documents;
 - b. Determine and verify field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information;
 - c. Determine and verify the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. Determine and verify all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - e. Verify that submittal contains sufficient information for Engineer to determine compliance with the Contract Documents.
 2. Contractor's stamp or written certification
 - a. Each submittal shall bear a stamp or specific written certification with signature representing that Contractor has reviewed the

submittal in accordance with the requirements of the Contract Documents, and that Contractor approves the submittal.

- b. Submittals without Contractor's stamp/certification and signature will be returned without review. Signatures that appear to be computer-generated will be treated as unsigned and the submittal will be returned without review.
- c. Place the Contractor's stamp on each page or index page, which shows items contained in the Submittal, which shall contain as a minimum a statement of approval and a signature.
- d. Signing the Action Submittal does not replace the Contractor's stamp/certification on each submittal.

D. Action Submittal Process

1. Submit to individual and location established at the Preconstruction Conference.
2. Engineer's review time will be as established in the accepted Schedule of Shop Drawing and Sample Submittals.
3. In resubmittal, identify changes made from previous submittals.
4. Engineer will not recognize or process submittals not requested in the Contract Documents.
5. Contractor shall maintain a copy of approved submittals at the construction site.

E. Engineer's Action

1. Engineer will review Action Submittals in accordance with Paragraph 7.16.D of the General Conditions.
2. After review, Engineer will mark the submittal with an appropriate action and return to Contractor.
3. The Engineer will mark the Action Submittal with one of the following dispositions:
 - a. "No Exceptions Taken" – Work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents.

- b. "Make Corrections Noted" - Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents.
 - c. "Amend & Resubmit" - Do not proceed with work covered by the submittal. Revise submittal or provide new submittal in accordance with Engineer's notations.
 - d. "Rejected" - Do not proceed with work covered by the submittal. Indicates material or equipment that cannot be approved. Upon return of submittal marked "Not Approved", repeat initial submittal procedure utilizing approvable material or equipment.
4. Variation from Contract Document Requirements
- a. Engineer will review any Contractor identified variations identified in writing to Engineer.
 - b. Engineer will determine if variation is acceptable.
 - c. If the variation is acceptable, Engineer will provide written approval of each variation by specific written notation on the submittal and documented in a Field Order.

1.05 INFORMATIONAL SUBMITTAL PROCEDURES

- A. Submit identified Informational Submittals on a timely basis to Engineer for review.
- B. Informational Submittals will not receive a written response from the Engineer, if complete and results meet the requirements of the Contract Documents.
- C. A written response will respond to Contractor, if incomplete information is submitted or the results shown on the submittal does not meet the requirements of the Contract Documents.

1.06 TRANSMITTAL OF SUBMITTALS

- A. Action Submittals and Informational Submittal
 - 1. Provide each Action Submittal with completed Action Submittal.
 - 2. Provide informational submittals with project name, specification section and sufficient information to identify for what the information pertains.

3. Provide closeout submittals in accordance with Specification Section 01 78 00 Closeout Submittals.

B. Electronic Submittals

1. Electronic files shall be in “portable document format (PDF)”. Files shall be electronically searchable.
2. Provide electronic files via e-mail.
3. Organization and Content
 - a. Each electronic submittal shall be one file; do not divide individual submittals into multiple files.
 - b. When submittal is large or contains multiple parts, provide PDF file with bookmark for each section of submittal.
 - c. Content shall be identical to paper submittal. First page of electronic submittal shall be Action Submittal.
 - d. Provide electronic submittal files from the original and shall be clear and legible.
 - (1) Do not provide scans of faxed copies.
 - (2) Electronic file shall be full size of original paper documents.
 - (3) All pages shall be properly oriented for reading on a computer screen.
4. Provide sufficient Internet service and e-mail capability for Contractor’s use in transferring electronic submittals and electronic correspondence.

- C. Provide three (3) paper copies of final approved Action Submittals.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION



ACTION SUBMITTAL

Client	
Project	
Prepared By	

Project No.	
Date	

Submittal No.	
Revision No.	

Copies for	<input type="checkbox"/> Shop Drawings	<input type="checkbox"/> O&M Information
	<input type="checkbox"/> Product Data	<input type="checkbox"/> Samples
	<input type="checkbox"/> Proposed Substitution	<input type="checkbox"/> AIS Certification

Specification	Section:	Title:
Item Description		

I certify that the above submitted item has been reviewed in detail and is correct and in strict conformance with the contract drawings and specifications, except as otherwise stated, and is stamped accordingly.

(Signature of Contractor)

Submittal Review (For Engineer's Use Only)

To: _____

Item	Action	Comments

Action	No Exceptions Taken	3. Amend & Resubmit
	Make Corrections Noted	4. Rejected – See Remarks

Reviewed By	
--------------------	--

Date	
-------------	--

These documents have been reviewed for conformance with the design concept of the Work and the information given in the Contract Documents. Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. The contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, coordinating his or her work with that of all other trades and performing all work in a safe and satisfactory manner.

**SECTION 01 40 00
QUALITY REQUIREMENTS**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Regulatory Requirements
 - 2. References
 - 3. Quality Assurance
 - 4. Quality Control

1.02 REGULATORY REQUIREMENTS

- A. Authority and Precedence of Codes, Ordinances, and Standards
 - 1. All codes, ordinances and standards referenced in the Drawings and Specifications shall have the full force and effect as though printed in their entirety in the Specifications.
 - 2. Precedence
 - a. Where specified requirements differ from the requirements of applicable codes, ordinances and standards, the more stringent requirements shall take precedence.
 - b. Where the Drawings or Specifications require or describe products or execution of better quality, higher standard or greater size than by applicable codes, ordinances and standards, the Drawings and Specifications shall take precedence so long it is legal.
 - c. Where no requirements are identified in the Drawings or Specifications, comply with all requirements of applicable codes, ordinances and standards of authorities having jurisdiction.
- B. Location of Transmission Facilities
 - 1. The term "Transmission facilities" includes all pipes, pipelines, wires, cables, ducts, wirelines and associated facilities, whether underground or aboveground, regardless of the nature of their transmittants or of their in-service application.

- a. The term includes, but is not restricted to, utility facilities, government-owned facilities, facilities transporting hazardous materials, communications and data facilities, drainage and water facilities and sewer systems.
 - b. The term does not include culverts.
2. Under the provisions of Wisconsin Statutes, Section 182.0175, contact all transmission facilities owners in the Work area a minimum of three (3) working days prior to beginning construction so affected transmission facilities owners can locate and mark their transmission facilities prior to start of construction work.
3. Take reasonable action to learn the location of any transmission facilities in and near the area where excavation is to be conducted.
4. Perform excavation work to avoid interference with transmission facilities in and near the excavation area to the extent possible meeting the requirements of Wisconsin Statutes, Section 182.0175.

C. Dewatering Wells

1. A well is any opening into the ground constructed for the purpose of obtaining groundwater made by digging, boring, drilling, and driving (or any other means) where the depth of the opening is greater than the largest surface dimension and extends more than 10 feet below the ground surface.
2. In accordance with Wisconsin Administrative Code NR 812, an approval is required from the Department of Natural Resources, Bureau of Drinking Water and Groundwater for any well or system of wells that in aggregate have a combined pumping capacity of 70 or more gallons per minute.
3. Obtain required permits from all regulatory governmental agencies governing dewatering.
 - a. Obtain required permits in accordance with “Temporary High Capacity Dewatering Well Application Instructions” WDNR Form Number 3300-258.
 - b. The governing agency in Wisconsin is:

Wisconsin Department of Natural Resources
Bureau of Drinking Water and Groundwater, WDNR DG/2
101 South Webster Street
Madison WI 53703

4. Maintain existing private wells affected by dewatering activities. Provide a water supply to any affected resident at no additional cost to the Owner.

D. Property Monuments

1. Protect property and road right-of-way monuments from movement.
2. Replace disturbed property and right-of-way monuments in accordance with Wisconsin Statutes 236 by a registered land surveyor.
3. Obtain permission of the governing body of the local municipality or county to remove property monument or right-of-way monument or report disturbance or removal to the governing body.
4. The cost of replacement of any monuments moved or destroyed during construction shall be the Contractor's responsibility.

E. Discharging chlorinated water system water to Surface Waters

1. Comply with Wisconsin Department of Natural Resources General WPDES Permit to Discharge Water Supply System Water.
2. Obtain any permits necessary to discharge or dispose of any chlorinated water and provide a copy to the Owner's Representative.
3. Water discharged to a surface water or wetland shall not exceed chlorine level normally found in the drinking water supply (<1.0 total chlorine).
 - a. Test existing water system chlorine levels prior to discharging chlorinated water to surface.
 - b. Test chlorine levels of water to be discharged to surface.
 - c. Proceed with discharge when chlorine levels meet chlorine discharge requirements.

F. Traffic Control

1. Provide traffic control in accordance with the requirements of the governmental entity responsible for the road and obtained permits.
2. Provide traffic control facilities including barricades, signs, lights, warning devices, pavement markings, flaggers, etc.
3. Construct and use traffic control facilities in accordance with the U.S.D.O.T. Federal Highway Administration's Manual on Uniform Traffic

Control Devices for Streets and Highways.

4. Provide traffic control devices as required to properly safeguard the public travel through final completion, including during periods of suspension of work.

1.03 REFERENCES

A. Definitions

1. Basic Contract definitions and terminology are included in the General Conditions of the Contract and the Supplementary Conditions.
2. The term “approved,” when used to convey Engineer’s action on Contractor’s submittals, applications, and requests, is limited to Engineer’s duties and responsibilities as stated in the General Conditions of the Contract.
3. The term “regulations” includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.

B. Reference Standards

1. Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are a part of the Contract Documents by reference.
2. Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
3. If compliance with two or more specified standards and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement.
4. The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements.

5. Each section of the specifications generally includes a list of reference standards normally referred to in that respective section. The purpose of this list is to furnish the Contractor with a list of standards normally used for outlining the quality control desired on the project. The lists are not intended to be complete or all-inclusive, but only a general reference of standards that are regularly referred to.
 6. Each entity engaged in construction on the Project shall be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents. Where copies of standards are needed to perform a required construction activity, obtain copies directly from the publication source and make them available on request.
- C. Specification Formats and Conventions
1. The Specifications are organized into Divisions and Sections using the 48-division format and The Construction Specifications Institute “MasterFormat” 2015 Edition Numbering and Titles.
 2. The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.
 3. General and Supplementary Conditions of the Contract apply to all Specification Sections.
 4. Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.

1.04 QUALITY ASSURANCE

- A. Reports and Documents
1. Test and Inspection Reports: Prepare and submit certified written reports specified in other Specification Sections to include the following:
 - a. Date of issue.
 - b. Project title and number.
 - c. Name, address, and telephone number of testing agency.
 - d. Dates and locations of samples and tests or inspections.

- e. Names of individuals making tests and inspections.
 - f. Description of the Work and test and inspection method.
 - g. Identification of product and Specification Section.
 - h. Complete test or inspection data.
 - i. Test and inspection results and an interpretation of test results.
 - j. Record of temperature and weather conditions at time of sample collection and testing and inspecting.
 - k. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - l. Name and signature of laboratory inspector.
 - m. Recommendations on re-testing and re-inspecting.
2. Manufacturer's Field Reports: Prepare written information documenting tests and inspections specified in other Specification Sections including the following:
- a. Name, address, and telephone number of representative making report.
 - b. Statement on condition of substrates and their acceptability for installation of product.
 - c. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - d. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - e. Other required items indicated in individual Specification Sections.
3. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.05 QUALITY CONTROL

A. General

1. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
2. Specific quality-control requirements for individual construction activities are specified in the Specification Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
3. Specified tests, inspections, and related actions do not limit Contractor's other quality control procedures that facilitate compliance with the Contract Document requirements.

B. Quality Control Services

1. Quality Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Owner's Representative.
2. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 - a. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 - b. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
3. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify the Work complies with requirements, whether specified or not.

- a. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - b. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing with Owner.
 - c. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 - d. Where quality control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality control service.
 - e. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 - f. Submit additional copies of each written report directly to authorities having jurisdiction, when they are so direct.
4. Manufacturer's Field Services: Where indicated, engage a manufacturer's representative to observe and inspect the Work.
- a. Manufacturer's representative's services include examination of substrates and conditions, verification of materials, inspection of completed portions of the Work, and submittal of written reports.
5. Re-Testing/Re-Inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including re-testing and re-inspecting, for construction that revised or replaced Work, at the Contractor's expense that failed to comply with the Contract Documents.
6. Testing Agency Responsibilities
- a. Cooperate with Owner's Representative and Contractor in performance of duties.
 - b. Provide qualified personnel to perform required tests and inspections.
 - c. Notify Owner's Representative and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

- d. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 - e. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - f. Submit a certified written report, in duplicate, of each test, inspection, and similar quality control service through Contractor.
 - g. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 - h. Do not perform any duties of Contractor.
7. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality control services, and provide reasonable auxiliary services as requested.
- a. Notify agency sufficiently in advance of operations to permit assignment of personnel.
 - b. Provide the following:
 - (1) Access to the Work.
 - c. Incidental labor and facilities necessary to facilitate tests and inspections.
 - d. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - e. Facilities for storage and field curing of test samples.
 - f. Delivery of samples to testing agencies.
 - g. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - h. Security and protection for samples and for testing and inspecting equipment at Project site.
8. Coordination
- a. Coordinate sequence of activities to accommodate required quality assurance and control services with a minimum of delay

and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

- b. Schedule times for tests, inspections, obtaining samples, and similar activities.

9. Special Tests and Inspections

- a. Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner.
- b. Testing agency will notify Owner's Representative and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
- c. Testing agency will submit a certified written report of each test, inspection, and similar quality-control service to Owner's Representative with copy to Contractor and to authorities having jurisdiction.
- d. Testing agency will submit a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
- e. Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- f. Testing agency will re-test and re-inspect corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
- B. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

- C. Protect construction exposed by or for quality control service activities.
- D. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality control services.

END OF SECTION

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SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Construction Facilities
 - a. Sanitary Facilities
 - 2. Construction Aids
 - 3. Vehicular Access and Parking
 - a. Temporary Parking
 - b. Traffic Control
 - 4. Temporary Barriers and Enclosures
 - a. Enclosures
 - b. Temporary Barricades
 - c. Temporary Fencing
 - d. Temporary Tree and Plant Protection
 - 5. Temporary Controls
 - a. Temporary Erosion and Sediment Controls
 - b. Temporary Environmental Controls
 - c. Temporary Waste Disposal
 - d. Dust Control
 - 6. Project Identification and Other Temporary Signage
 - 7. Temporary Services During Construction
 - a. Postal Service
 - b. Solid Waste Collection

1.02 REFERENCES

- A. American National Standards Institute (ANSI)
ANSI A10 Construction Package, Parts 1 to 49
- B. National Electrical Contractors Association (NECA)
NECA 200 Standard for Installing and Maintaining Temporary Electrical Power at Construction Sites
- C. National Fire Protection Association (NFPA)
NFPA 10 Standard for Portable Fire Extinguishers
NFPA 70E Standard for Electrical Safety in the Work Place
NFPA 241 Standard for Safeguarding Construction, Alteration, and Demolition Operations

1.03 QUALITY ASSURANCE

- A. Comply with industry standards and with applicable laws and regulations of authorities having jurisdiction, including but not limited to the following:
 - 1. Health and safety regulations.
 - 2. Utility company regulations.
 - 3. Police, fire department and rescue squad rules.
 - 4. Environmental protection regulations.
 - 5. NFPA 241 "Standards for Safeguarding Construction, Alterations and Demolition Operations".
 - 6. ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition".
 - 7. NECA Electrical Design Library "Temporary Electrical Facilities", NFPA 70, and NEMA, NECA and UL standards and regulations for temporary electric service.
- B. Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Provide undamaged materials in serviceable conditions and suitable for use intended.
- B. Crushed Aggregate Parking Lot Material
 - 1. Aggregates shall consist of hard, durable particles of crushed stone or crushed gravel and a filler of natural sand, stone sand or other finely divided mineral matter.
 - 2. Remove oversize material by screening or by crushing to required sizes.
 - 3. Composite material shall be free from organic matter, shale, and lumps or balls of clay and shall conform to the gradation requirements below.
 - 4. Gradation:

% By Weight Passing		
Sieve Size	Crushed Gravel	Crushed Stone
1 inch	100	100
$\frac{3}{8}$ inch	50 - 85	40 - 75
No. 4	35 - 65	25 - 60
No. 10	25 - 50	15 - 45
No. 40	10 - 30	---
No. 200	3 - 10	3 -12

2.02 TEMPORARY SELF-CONTAINED TOILET UNITS

- A. Provide temporary self-contained toilet units of temporary single-occupant toilet units of the chemical, aerated recirculation, or combustion type for use by all construction personnel.
- B. Properly vent and fully enclose with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

2.03 MAILBOXES

- A. Curbside Mailboxes: Provide standard curbside mailboxes complying with United States Postal Service (USPS) STD-7B.
- B. Cluster Mailboxes: Provide cluster box units complying with USPS-B-1118.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

- A. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.
- C. Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and other elements.
- D. Remove each temporary facility when need for its service has ended.
- E. Materials and facilities that constitute temporary facilities are the property of Contractor.
- F. Remove temporary parking lot.
- G. Restore area to preconstruction conditions or better providing excavation, landscaping, and other restoration as necessary.
- H. Maintain facilities in good operating condition until removal.
- I. Maintain markers for underground lines.
- J. Protect underground lines from damage during excavation operations.
- K. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
- L. Remove temporary paving not intended for or acceptable for integration into permanent paving.
- M. Where the area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for subsoil or fill in the area.
- N. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns.
- O. Repair or replace street paving, curbs, and sidewalks at temporary entrances, in accordance with the requirements of the governing authority.
- P. Prior to project completion, replace clean and restore permanent facilities used during the construction period including, but not limited to, the following:
 - 1. Replace air filters and clean inside of ductwork and housings.

2. Replace significantly worn parts and parts subject to unusual operating conditions.
3. Replace lamps burned out or noticeably dimmed by hours of use.

3.02 CONSTRUCTION FACILITIES

A. Sanitary Facilities

1. Provide toilets, wash facilities and drinking water fixtures in compliance with regulations and health codes for type, number, location, operation and maintenance of fixtures and facilities.
2. Provide toilet tissue, paper towels, paper cups and similar disposable materials as appropriate for each facility and provide covered waste containers for used materials.
3. Install separate self-contained toilet units for male and female personnel shielded to ensure privacy.
4. Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition.
5. Dispose of drainage properly.
6. Supply cleaning compounds appropriate for each condition.
7. Include safety showers, eyewash fountains and similar facilities for the convenience, safety and sanitation of personnel.
8. Provide drinking water fountains or containerized tap-dispenser bottled-drinking water units, complete with paper cup supplies. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55°F (7 to 13°C).

3.03 CONSTRUCTION AIDS

- A. Provide facilities for hoisting materials and personnel.

3.04 VEHICULAR ACCESS AND PARKING

- A. Provide access to the Site as established on the Drawings as required for the work.
- B. Provide additional land required for storage of material, locating trailers, or other temporary facilities where land not available at the Site.

- C. Acquire, construct, maintain, and restore any temporary access facilities required.
- D. Provide temporary aggregate surface parking areas to accommodate construction personnel.
- E. When space is not adequate, provide off-site parking.
- F. Provide access to fire hydrants at all times. Do not inhibit access to other utilities.
- G. Traffic Control
 - 1. Permits: Obtain necessary permits to close streets or detour traffic.
 - 2. Maintaining Local Access: Maintain local access and access to driveways along project. Do not disruption of access more than 24 consecutive hours.
 - 3. Notification: Notify Owner, local police, school district, and fire department in writing at least 24 hours in advance of detouring traffic or closing street. Notify adjacent residents and businesses in writing at least 24 hours prior to closing their driveway access.
 - 4. Barricades: Provide traffic barricades in accordance with “The Manual on Uniform Traffic Control Devices (MUTCD); Part VI, Standards and Guides for Traffic Controls for Street and Highway Construction, Maintenance, Utility, and Incident Management Operations.”
 - 5. Traffic control and signing shall meet guidelines set forth in the MUTCD for road closures and road construction and traffic control details shown in the Drawings.

3.05 TEMPORARY BARRIERS AND ENCLOSURES

- A. Enclosures
 - 1. Provide temporary enclosures for protection of construction, in progress or completed, from exposure, inclement weather, other construction operations and similar conditions.
 - 2. Where heat is needed and the building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions or unacceptable effects.

3. Install tarpaulins securely with incombustible framing. Close openings of 25 sq. ft. (2.3 sq. m.) or less with plywood or similar materials.
4. Close openings through floor or roof decks and other horizontal surfaces with load-bearing wood-framed construction.
5. Where enclosure exceeds 100 sq. ft. (9.2 sq. m) in area, use UL labeled fire-retardant-treated wood and plywood for framing and sheathing.
6. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

B. Temporary Barricades

1. Provide barricades, warning signs, and lights around construction activities.
2. Comply with standards and code requirements for erecting structurally adequate barricades.
3. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard involved.
4. Where appropriate and needed, provide lighting, including flashing red or amber lights.

C. Temporary Stairs

1. Until permanent stairs are available, provide temporary stairs where ladders are not adequate.
2. When permanent stairs are available, cover finishes with protective coverings to result in undamaged conditions at project completion.

D. Temporary Tree and Plant Protection

1. Provide protection of existing trees and shrubbery near or within the Site not shown on Drawings for removal.
2. Protection includes root system within drip line in addition to trunk, limbs and branches.
3. Trim branches, if required, with written permission of Owner.

4. Replace damaged trees with like kind or species determined by Owner.
 - a. Replace shrubbery and trees with minimum 3" diameter tree.
 - b. In addition to replacement, compensation to the Owner may be required to make owner whole for damage.
 - c. Estimating tree value cost shall be determined in accordance with "The Council of Tree and Landscape Appraisers (CTLA) Guide for Plant Appraisal (8th Edition)".

3.06 TEMPORARY CONTROLS

- A. Temporary Erosion and Sediment Control
 1. Provide temporary erosion and sediment control in accordance with the appropriate specification section.
- B. Temporary Environmental Controls
 1. Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result.
 2. Avoid using tools and equipment that produce harmful noise.
 3. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons near the site.
- C. Temporary Waste Disposal
 1. Collect waste from construction areas and elsewhere daily. Enforce requirements strictly and dispose of material lawfully.
 2. Comply with NFPA 241 for removal of combustible waste material and debris.
 3. Do not hold waste materials more than 7 days during periods when the ambient temperature remains continuously less than 80°F (27°C), or more than 3 days when the temperature exceeds or is expected to rise above 80°F (27°C).
 4. Handle and properly containerize hazardous, dangerous or unsanitary waste materials separately from other waste.

D. Dust Control

1. Maintain temporary site roadways, Owner's existing roads, and public roads used during construction operations to minimize conditions causing dust.
2. Comply with local environmental regulations for dust control.
3. If dust control measures are considered inadequate, provide additional dust control methods.
4. Provide dust control in accordance with the appropriate specification section.

3.07 TEMPORARY SERVICE DURING CONSTRUCTION

A. Postal Service

1. Coordinate delivery of mail with the USPS.
2. Maintain postal service to all properties within the project area. Meet the needs of physically challenged individuals within the project area.
3. When construction staging prohibits access to normal mailbox locations by the USPS, establish temporary mail service as follows:
 - a. Coordinate with the USPS to establish an acceptable location for a temporary group mailbox.
 - b. Verify proposed location with the Engineer prior to installation.
 - c. Erect and maintain a temporary group mailbox or provide a temporary USPS approved cluster box unit.

B. Solid Waste Collection

1. Coordinate collection of solid waste with property owners and the solid waste collection agencies operating in the project area.
2. Maintain access for solid waste collection vehicles during construction.
3. When construction staging prohibits access to normal collection locations by solid waste collection vehicles, comply with the following:
 - a. Coordinate with solid waste collection agencies to establish a common location for collection outside the inaccessible area.

- b. Coordinate with residents/businesses within the project area for the alternate solid waste collection procedures.
- c. Affix a temporary label to solid waste containers identifying the property owner's or renter's name or address.
- d. Prior to the normal collection time, gather containers from properties within the inaccessible area, and transport to the common location accessible by solid waste collection vehicles.
- e. Return solid waste containers to each property within 24 hours after collection.

END OF SECTION

**SECTION 01 71 13
MOBILIZATION**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Mobilization for preparatory work and operations required prior to beginning Work.

1.02 ADMINISTRATIVE REQUIREMENTS

- A. Coordination
 - 1. Determine appropriate personnel, tools, equipment, materials, supplies, and incidentals required to properly perform the Work.
 - 2. Move appropriate personnel, tools, equipment, materials, supplies, and incidentals to the Project Site as required to perform the Work.
 - 3. Upon completion of the Work, remove personnel, tools, equipment, materials, supplies, and incidentals from the Project Site.
 - 4. Restore disturbed areas outside the Project Site to a preconstruction condition.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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**SECTION 01 71 23
FIELD ENGINEERING**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Engineering Surveys Provided by the Engineer.
 - 2. Surveys Provided by the Contractor.
 - 3. Profile and Topography Shown on the Drawings.
 - 4. Record Measurements and Markers.

1.02 SUBMITTALS

- A. Provide record measurements of facilities as installed.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 PREPARATION

- A. Investigate and verify the existence and location of site improvements, utilities, and other existing facilities.
- B. Before construction, verify the location of invert elevations at points of connection of sanitary sewer, storm sewer, water piping and underground electrical services.
- C. Furnish information to the Engineer and the appropriate utility regarding conflicts that are necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction.
- D. Provide the Engineer two working days advance notification when ready for engineering surveys for construction.

3.02 ENGINEERING SURVEYS PROVIDED BY THE ENGINEER

- A. General
 - 1. Establish benchmarks for construction as shown on the Drawings.

2. Establish construction reference stakes as shown on the Drawings.
- B. Gravity Sewer Systems
1. Provide construction reference stakes set for pipe construction location at critical changes in horizontal and vertical alignment.
 2. Provide construction stakes for location of pipe at connections.
- C. Roads and Parkway
1. Provide construction slope intercept stakes for horizontal and vertical alignment on each side of road based on each cross section shown in the Drawings.
 2. Provide construction stakes for clearing and grubbing limits.
 3. Provide data collection prior to construction and upon completion of construction to determine earthwork quantities when paid on a unit price basis.
- D. Site Improvements and Buildings
1. Provide construction reference stakes for location of construction limits.
 2. Provide construction reference stakes to establish a reference line from which facilities can be located.
 3. Provide benchmarks as shown on the Drawings.

3.03 SURVEYS TO BE PROVIDED BY THE CONTRACTOR

- A. General
1. Locate, preserve, and protect established construction reference stakes, benchmarks, and control points.
 2. Locate, preserve, and protect property corners and section corner monuments.
 3. Provide additional construction staking as necessary to complete construction based on the construction reference stakes provided by the Engineer and the Drawings.
 4. Before beginning with necessary construction staking, verify the information shown on the Drawings, in relation to the established construction reference stakes, benchmarks, control points and property

corners. Notify the Engineer of any discrepancies.

5. Remove construction reference stakes when directed by the Engineer.

B. Gravity Sewer Systems

1. Provide any intermediate construction reference points as required to verify installation at the line and grade established and locate appurtenant structures.
2. Check the line and grade with the construction reference stakes at each pipe length.
3. Provide additional construction reference stakes necessary to establish location and grade in accordance with the Drawings.

C. Roads

1. Provide construction reference stakes for subgrade at a minimum of 100' intervals and a minimum of 25' intervals within vertical and horizontal curves. Provide a centerline stake and a stake at edge of the subgrade at each location.
2. Provide construction reference stakes for top of crushed aggregate base course at a maximum of 100' intervals and a maximum of 25' intervals within vertical and horizontal curves. Provide a centerline stake and a stake at edge of the crushed aggregate base course at each location. This is not required where curb and gutter is to be constructed.
3. Provide additional construction reference stakes necessary to establish location and grade in accordance with the Drawings.

D. Site Improvements and Buildings

1. Provide construction reference stakes for site improvements including pavements, grading, fill and topsoil placement, and utility line and grades.
2. Provide construction reference stakes for location and elevations of structures, building foundations, column grids, floor levels, electrical facilities, and mechanical facilities.

3.04 PROFILE AND TOPOGRAPHY SHOWN ON THE DRAWINGS

- A. Contours or profiles of the ground are shown on the Drawings. These profiles and contours are reasonably correct, but are not guaranteed to be absolutely so,

and together with any schedule of quantities are presented only as an approximation.

3.05 RECORD MEASUREMENTS AND MARKERS

- A. Provide record survey information of the completed facilities showing the horizontal and vertical location of buried utilities, structures, and other facilities covered when construction is complete.
- B. Gravity Sewer Systems
 - 1. At a minimum, provide a record survey recording the horizontal and vertical location of the following:
 - a. Underground covered work that deviates from the Drawings.
 - b. Valves and pipeline fittings.
 - c. Changes in direction.
 - d. Flow line elevation of gravity sewer stubs.
 - e. "Y" or "T" branches on sewers.
 - 2. Provide the following markers showing the horizontal terminus location.
 - a. Sanitary Sewer Service: Bury vertically, an 8' long 2"x4" green painted stake with its top extending 24" above ground level.
 - b. Storm Sewer Service: Bury vertically, a 6' long 2"x4" orange painted stake with its top extending 24" above ground level.

END OF SECTION

**SECTION 01 77 00
CLOSEOUT PROCEDURES**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion
 - 2. Final Completion
 - 3. Inspection Procedures
 - 4. Project Record Documents.
 - 5. Warranties
 - 6. Final Cleaning

1.02 SUBSTANTIAL COMPLETION

- A. Before notification that the Work is substantially complete, provide the following:
 - 1. Demonstrate to the Engineer that systems and system components operate as intended.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, construction photographs, damage or settlement surveys, property surveys, and similar final record information.
 - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.

7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 8. Complete startup testing of systems.
 9. Submit test/adjust/balance records.
 10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 11. Advise Owner of changeover in heat and other utilities.
 12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
 13. Complete final cleaning requirements, including touchup painting.
 14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Submit written notification to Owner and Engineer that the entire Work is ready for its intended use and the entire Work is substantially complete.
1. Provide Engineer and Owner an initial draft of punch list items to be completed or corrected before final payment.
 2. If the items in paragraph A. above are complete, then within 14 days Owner, Contractor and Engineer will make an inspection of the Work to determine status of completion.
 3. If Engineer considers the Work substantially complete, then Engineer will prepare and deliver to the Owner a tentative Certificate of Substantial Completion fixing the date of Substantial Completion with an attached tentative list of items to be completed or corrected before final payment.
 4. Engineer will issue a definitive Certificate of Substantial Completion with list of items to be completed or corrected or notify Contractor that the Work is not substantially complete within 21 days after submittal to Owner.
 5. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 6. Results of completed inspection will form the basis of requirements for Final Completion.

1.03 FINAL COMPLETION

- A. Before requesting final inspection for determining final completion, complete the following:
 - 1. Items identified as requiring correction or completion.
 - 2. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 - 3. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. Submit a written notice that the entire Work is complete. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements.
 - 1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.04 WARRANTIES

- A. Submit written warranties for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Submit properly executed warranties of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8½ by 11 inch 115-by-280-mm paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 FINAL CLEANING

- A. Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION

SECTION 02 41 13
SELECTIVE SITE DEMOLITION AND UTILITIES ABANDONMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Demolition of Walls, Piers, Surface Drains, Foundations, and Concrete or Masonry Structures
 - 2. Removal of Culvert Pipe
 - 3. Disposal of Removed Materials
 - 4. Backfilling

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Granular backfill material shall conform to Soil Class D-1 or D-2 stated in the appropriate Specification Section.
- B. Concrete for plugging pipe shall conform to the following:
 - 1. 28 day compressive strength: 3000 psi
 - 2. Maximum size coarse aggregate: 1 1/2"
 - 3. Minimum cement content: 4.75 bags per cubic yard
 - 4. Air content: 6±1
 - 5. Slump: 3 to 4 inches
 - 6. Maximum water/cement ratio: 0.58
- C. Pipe Abandoned In-Place
 - 1. Flowable Controlled Low Strength Material (CLSM) consisting of cement and fly ash, sand, and water. The fill shall develop a minimum compressive strength of 1,200 lab/sq. ft. (8.3 psi) within two hours after placement and a 28 compressive strength within the range of 75-125 psi.
 - 2. Sand for filling pipelines shall be 50-mesh size silica sand.

PART 3 - EXECUTION

3.01 GENERAL

- A. Remove existing structures, with attached parts and connections, within limits shown on the Drawings or that interfere with new construction.
- B. Do not damage adjacent portions of existing structures not shown for removal.
 - 1. Complete operations necessary for the removal of any existing structure that might endanger the new construction, prior to the construction of the new Work.
 - 2. Do not use any equipment or devices that might damage structures, facilities, or property which are to be preserved and retained.
- C. Salvageable Material
 - 1. Remove salvageable material without damage designated to remain the property of the Owner or designated for relocation within the Project and place in location designated by the Owner.
 - 2. Safeguard and protect salvageable materials designated for relocation within the Project or until delivery to the Owner.

3.02 DEMOLITION OF WALLS, PIERS, SURFACE DRAINS, FOUNDATIONS, AND CONCRETE OR MASONRY STRUCTURES

- A. Remove as shown on the Drawings entirely or to an elevation at least three (3) feet below the road earth subgrade or elsewhere to three (3) feet below the finished proposed slopes or natural ground.

3.03 DISPOSAL OF REMOVED MATERIALS

- A. Deliver materials designated for salvage to Owner's designated location.
- B. Haul and dispose of all other materials to a site provided by the Contractor in conformance with all governing authorities.

3.04 BACKFILLING

- A. Fill all trenches, holes, and pits resulting from the removal of structures with satisfactory soil, or with broken masonry and satisfactory soil, or with granular backfill.
- B. Place materials in layers not more than 12 inches in thickness.

- C. Thoroughly compact each layer by means of tampers, rollers, or vibrators.
- D. Do not use water to expedite settlement of backfill except with the approval of the Owner's Representative.
- E. Exclude broken masonry from the top 12 inches of the finished earth grades.
- F. Unless otherwise provided, backfill all trenches, holes, and pits to the elevation of the natural ground, the proposed finished earth subgrade, or finished slopes, as may be necessary due to the location of the removed structure.

END OF SECTION

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**SECTION 31 11 00
CLEARING AND GRUBBING**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Clearing
 - 2. Grubbing – Stump Removal
 - 3. Replacement and Charges for Damaged Trees and Shrubs
 - 4. Disposal

1.02 ALLOWANCES

- A. If so stated in the specification “Allowances”, installation testing will be paid as an allowance. All other testing will be incidental to the Work.
- B. If there is no reference in the specification section to “Allowances”, then testing costs will be incidental to other Work items.

1.03 QUALITY ASSURANCE

- A. Regulatory requirements:
 - 1. Conform to applicable local code for disposal of debris
 - 2. Coordinate Work with utility companies

PART 2 - PRODUCTS

2.01 REFERENCES

- A. The Council of Tree and Landscape Appraisers (CTLA):

CTLA Guide for Plant Appraisal (8th Edition)

PART 3 - EXECUTION

3.01 PREPARATION

- A. Protect utilities, benchmarks, property monuments, and adjacent property.

- B. Provide temporary fences, barricades, coverings, and other protections to preserve existing trees and shrubs to remain.

3.02 CLEARING

- A. Clear trees and shrubs within construction limits indicated for removal on the Drawings.
 - 1. Do not remove trees and shrubs unless specifically stated for removal on the Drawings.
 - 2. Unless shown on the Drawings, do not remove trees without Engineer's approval.
 - 3. Complete clearing in a manner that prevents obstruction to traffic.
- B. Clearing consists of the felling, trimming, and cutting of trees into sections and satisfactory disposal of the trees and other vegetation designated for removal, including downed timber, snags, brush, and rubbish occurring within the areas cleared.
- C. Cut trees, stumps, roots, brush, and other vegetation in areas cleared flush with or below the original ground surface, except such trees and vegetation as indicated to be left standing.

3.03 GRUBBING – STUMP REMOVAL

- A. Grubbing consists of the removal and disposal of stumps, roots larger than 3 inches diameter, and matted roots from the areas designated for clearing.
- B. Remove grubbed material together with logs and other organic or metallic debris to a depth of not less than 36 inches below original ground surface level.
- C. Fill depressions made by grubbing with suitable material conforming to the adjacent material and compact to level of original ground.

3.04 REPLACEMENT AND CHARGES FOR DAMAGED TREES AND SHRUBS

- A. Replace damaged trees and shrubs designated to remain in place with like kind or species determined by Owner.
- B. Replace damaged trees with minimum 3" diameter.
- C. Additional tree liability charges to Contractor will be based on estimated tree value lost determined in accordance with "The Council of Tree and Landscape Appraisers (CTLA) Guide for Plant Appraisal (8th Edition)."

3.05 DISPOSAL

- A. Dispose of all cleared and grubbed material in a safe manner in accordance with local, state, and federal laws and requirements.
- B. Obtain any necessary permits and approvals required to properly dispose off-site, burn, bury, or dump cleared and grubbed material.
- C. Conform to all requirements for disposal of diseased trees.
- D. Remove debris, rock and extracted plant life from Site.

END OF SECTION

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**SECTION 31 23 00
EXCAVATION AND FILL**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Site Preparation
 - 2. Excavation
 - 3. Stockpiling
 - 4. Filling
 - 5. Placing Layers
 - 6. Grading
 - 7. Compaction and Moisture Requirements
 - 8. Borrow

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - ASTM D1556 Test for Density of Soil in Place by the Sand-Cone Method
 - ASTM D1557 Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Lb (4.54 kg) Rammer and 18 in. (457 mm) Drop
 - ASTM D2216 Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures
 - ASTM D2487 Standard Test Method for Classification of Soils for Engineering Purposes
 - ASTM D6938-07 Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

B. American Association of State Highway and Transportation Officials (AASHTO)

- | | |
|-------------|---|
| AASHTO T99 | Standard Method of Test for Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305mm (12-in.) Drop |
| AASHTO T191 | Standard Method of Test for Density of Soil In-Place by the Sand-Cone Method |
| AASHTO T310 | Standard Method of Test for In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth) |

C. Wisconsin Department of Natural Resources (WDNR)

WDNR Wetland General/Individual Permit Conditions

1.03 ALLOWANCES

- A. If so stated in the specification “Allowances”, installation testing will be paid as an allowance. All other testing will be incidental to the Work.
- B. If there is no reference in the specification section to “Allowances”, then testing costs will be incidental to other Work items.

1.04 SUBMITTALS

- A. Informational Submittals
 - 1. Location map of borrow site if not indicated on Drawings.
 - 2. Field or Site Quality Control Submittals –Submit two (2) copies of the results of quality control testing (include location where tests were performed).

1.05 QUALITY ASSURANCE

- A. Obtain an independent testing laboratory approved by the Owner to provide quality control testing.
- B. Material Testing Requirements
 - 1. Source Testing of Soils and Aggregate:
 - a. Test all select soils and aggregates for acceptance as required by other Sections within these Specifications.
 - 2. Installation Testing

- a. Determine maximum density and optimum moisture content for compaction in accordance with ASTM D1557 (one test for each type of material for each source).
- b. Conduct field density tests in accordance with ASTM D1556 and/or D6938.
- c. Minimum frequency for field density testing shall be two (2) acceptable tests per layer per project or as follows, whichever number is greater:

Fill utilized for:	Number of Acceptable Tests for each Compacted Fill Layer:
Embankments, dikes or berms	1 test per 100 Linear Feet
Structural or controlled fills	1 test per 500 Linear Feet
Non-structural fills	1 test per 2,000 cubic yards

3. Provide Additional Density and Gradation Testing:

- a. Change in method of compaction.
- b. Change in source or quality of soil or aggregate.
- c. Disturbed cut areas.

C. When the testing results show that the Work is of an acceptable nature, the acceptance of the work shall not relieve the Contractor from making corrections to the tested work during the warranty period.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Topsoil
 - 1. Natural on-site upper layer of soil consisting of loam, sandy loam, silt loam, silty clay loam, or clay loam humus-bearing soils able to sustain plant life.
- B. Wetland Topsoil
 - 1. Material consisting of moist organic soil, including any existing wetland vegetation and seeds.
- C. Fill and Borrow

1. Material consisting of satisfactory soil or a mixture of satisfactory soil, stone, gravel, or other acceptable materials, of a character and quality satisfactory for the purpose intended. Material shall be free from sod, stumps, logs, and other perishable and deleterious matter.
 2. As a minimum, all soil shall meet the requirements of Soil Class G-1 in accordance to the appropriate Specification Section.
- D. Embankments
1. For embankments that will function as temporary or permanent water impoundments for ponds or small dams, the following shall apply:
 - a) Satisfactory soil materials are those complying with ASTM D2487 soil classification groups GC, GM, SC, SM, CL, ML, CH, and MH; or as determined by Engineer.
 - b) Unsatisfactory soil materials are those complying with ASTM D2487 soil classification groups GW, GP, SW, SP, OL, OH, and PT; or as determined by Engineer.

PART 3 - EXECUTION

3.01 SITE PREPARATION

- A. Provide erosion and sediment control prior to excavation in accordance to the appropriate Specification Sections and Drawings.
- B. Clear and grub as in accordance to the appropriate Specification Sections and shown on the Drawing.
- C. Remove and dispose of site debris.
 1. All debris materials removed from the project site shall be disposed of at a legally approved site.
 2. Do not burn materials onsite.
- D. Excavate wetland topsoil material from areas shown on the Drawings, stockpile and protect from contamination of other soils. Handle material in compliance with associated permits / permitting authorities / regulatory agencies.
- E. Remove structures, pavement, and debris (such as vehicles, equipment, appliances, building materials or remains thereof, tires, and containers) from the site to an off-site disposal area selected by the Contractor in accordance with appropriate Specification Sections.

3.02 EXCAVATION AND FILL

A. Topsoil Stripping

1. Segregate and stockpile stripped and/or excavated soils for use on the site as intended and stated on the Drawings.
2. Excavate/strip and stockpile topsoil within the project limits shown on the Drawings prior to beginning excavating, fill or hauling operation.
3. Provide excavating/stripping of topsoil in a manner that will minimize sediment runoff and not obstruct natural or intended drainage.
4. Do not strip topsoil when wet.
5. Do not mix topsoil with subsoils.

B. Stockpiling

1. Stockpiles shall not exceed ten (10) feet in height.
2. Protect stockpiles from sediment transport by surface roughening, watering, and perimeter silt fencing and in accordance with appropriate Specification Sections.
3. Provide temporary seeding of stockpiles remaining longer than 30 days in accordance to appropriate Specifications Sections.

C. Excavation

1. Following clearing and grubbing, miscellaneous structure and debris removal, topsoil stripping, etc., excavate to finished subgrade (undisturbed soil or compacted soil layer) elevations shown on the Drawings.
2. Place suitable excavated material in fill areas to finished subgrade elevations shown on the Drawings.
3. Over excavate and remove unsuitable materials in areas requiring pavement and other structures including the following materials:
 - a. Frozen materials.
 - b. Materials subject to decomposition.
 - c. Clods of clay and stones larger than 3 inches.

- d. Organic material including silts.
 - e. Soils with excessive moisture content.
4. Soils with excessive moisture content required to support pavement and other structure may not need to be removed if improvement by compaction, disking, drying and recompaction, or similar methods that when tested will meet optimum moisture content for compaction in accordance to appropriate Specification Sections.

D. Filling

- 1. Provide suitable excavated material that will meet compaction requirements in fill areas where pavements and other structures are shown on the Drawings.
- 2. Begin filling operations starting at the lowest point of the fill, below the grade at the bottom of ravines, etc.
- 3. Spread fill material in successive uniform horizontal layers not exceeding 8 inches in depth over entire fill area before compaction.
 - a. Work each layer to break down clods over 6 inches in size and to secure uniform moisture content.
 - b. Where filling in 8 inches is not feasible, as in the case of filling in water or over steep slopes, construct fill in one layer to the minimum elevation at which equipment can be operated.
 - (1) Construct fill layers above this elevation in layers of the specified depth.
 - (2) On side of hills, too steep to operate hauling equipment, over low wet ground, in marshes, or if filling in water, provide a single layer, just thick enough to support the hauling equipment while placing subsequent layers.
 - c. For embankments spread individual layers evenly to uniform thickness throughout and approximately parallel with the finished grade for the full width of the embankment.

E. Grading

- 1. Provide finish grade subgrade foundation within following tolerances:

- a. When subgrade is prepared for placement of Granular Subbase or finished grading construction outside pavement areas, then elevation of finished surface shall not vary by more than 0.10 foot from prescribed elevation.
 - b. When subgrade is prepared for placement of Crushed Aggregate Base Course, then elevation of finished surface, at time the next layer is placed, shall not vary by more than 0.05 foot above or 0.10 foot below prescribed elevation.
 - c. When subgrade is prepared for placement of Asphaltic or Concrete Base, Stabilized Base, or Surface Course, then elevation of finished surface at time next layer is placed, shall not vary by more than 0.05 foot from prescribed elevation.
2. Subgrade Intermediate Consolidation and Trimming
- a. Provide temporary drainage and efficient management of surface water.
 - (1) At the end of each workday, consolidate and trim the subgrade to aid drainage and to protect against erosion.
 - (2) Consolidate and trim those portions of the subgrade surface disturbed, operated over, or constructed during that workday.
 - (3) Consolidate and trim until float material is pressed firmly against the subgrade and produces a tight, smooth, well-drained surface.
 - (4) If rain is imminent during the workday, consolidate and trim the subgrade before the rain falls to avoid ponding and erosion.
 - b. No compensation will be provided for methods necessary to dry materials that have excessive moisture added due to surface water.
3. In lawn or unpaved areas foundations, finish areas to receive topsoil to within not more than 0.10 feet above or below required subgrade elevations.
4. In walkway foundation, shape surface of areas under walks with finish surface not more than 0.05 feet above or below required subgrade elevation.

5. In excavated slopes or areas and embankment slopes or areas designated to be covered with topsoil or salvaged topsoil, undercut or underfilled to the necessary depth to provide for the specified amount of topsoil or salvaged topsoil to be placed and finished to the required grade lines and sections.
6. Upon completion of finish grading in sloped areas with tracked equipment, provide a last pass to leave track mark imprints that are perpendicular to the direction of runoff flow. Blade work is not required during directional tracking.

F. Compaction and Moisture Requirements

1. Degree of compaction is expressed as a percentage of maximum density obtained by laboratory test procedure. This percentage of maximum density is provided from results of field test procedures in accordance to ASTM D1556.
2. Compact material using standard compaction methods unless the contract specifies special compaction.
 - a) Deposit, spread, and level material in layers generally no thicker than 8 inches before compaction. Compact each layer of material until the compaction equipment achieves no further significant consolidation. Provide the required compaction for each layer before placing any material for a succeeding layer.
 - b) Do not compact material if the moisture content causes excessive rutting by the hauling equipment, or excessive displacement or distortion under the compacting equipment. If these conditions exist, allow the materials to dry before compacting. If necessary, accelerate drying the materials by aerating or by using blade graders, harrows, discs, or other appropriate equipment to manipulate the material.
 - c) If the material does not contain sufficient moisture to compact properly, add water in quantities the engineer deems necessary to aid, accelerate, and secure effective compaction.
 - d) All embankment material placed within the limits of assumed one to one slopes extending outward and downward from the outer limits of the finished shoulder lines or back of curb shall be compacted in accordance with these specifications.

3. Compaction is required to a minimum of 95% of maximum dry density as determined by AASHTO Method T99 (Standard Proctor) will be required.
 4. Building Pads:
 - a) Fill placed in areas designated on the Drawings or in the specifications to support one- and two-story buildings shall be placed in lifts not to exceed eight inches and compacted to a minimum of 98% of maximum dry density as determined by AASHTO Method T99. Engineer makes no representation regarding soil suitability for foundations or other structural applications.
 5. Embankments Used for Impoundments:
 - a. The compaction requirements for the full width and depth of all embankments that will function as temporary or permanent water impoundments for ponds or dams shall meet a minimum of 95% of maximum dry density as determined by AASHTO Method T99.
 6. Maintain proper soil moisture contents for compaction in accordance to optimum moisture content as determined by ASTM D1557. Use Proctor to determine acceptance moisture contents for soil compaction.
- G. Topsoil Placement / Re-spread
1. Place topsoil within the areas indicated on the Drawings. Place in a manner and thickness in accordance to applicable Specification Sections.

END OF SECTION

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**SECTION 31 23 33
TRENCHING AND BACKFILL**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Trenching and Backfill
 - 2. Dewatering
 - 3. Compaction
 - 4. Materials Testing
 - 5. Excess Material
- B. This section applies to below ground pressure and gravity pipe lines.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - ASTM D698 Laboratory Compaction Characteristics of Soil Using Standard Effort
 - ASTM D1556 Density and Unit Weight of Soil in Place by the Sand-Cone Method
 - ASTM D1586 Standard Method for Penetration Test and Split-Barrel Sampling of Soils
 - ASTM D2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Application
 - ASTM D2922 Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
- B. American Association of State Highway and Transportation Officials (AASHTO):
 - AASHTO Method T99 The Moisture Density Relationship of Soils Using a 5.5 lb Hammer and a 12-Inch Drop (Standard Proctor)
 - AASHTO Method T191 Density of Soil in place by the Sand-Cone Method
 - AASHTO Method T310 In-Place Density and Moisture Content of Soil and Soil Aggregate by Nuclear Methods (Shallow Depth)

1.03 ALLOWANCES

- A. If so stated in the specification “Allowances”, installation testing will be paid as an allowance. All other testing will be incidental to the Work.
- B. If there is no reference in the specification section to “Allowances”, then testing costs will be incidental to other Work items.

1.04 SUBMITTALS

- A. Informational Submittals: Submit two (2) copies of the results of quality control testing (include location where test was performed for each result):
 - 1. Materials source testing.
 - 2. Background testing
 - 3. Installation testing.
 - 4. Results of density testing.
 - 5. Certificate of Insurance – Rock Blasting
 - 6. Dewatering Permits

1.05 QUALITY ASSURANCE

- A. Testing Requirements:
 - 1. Unless covered under the “Allowances” section, Contractor shall pay for soil sampling and testing by a qualified testing agency, acceptable to Owner and independent of Contractor. Contractor is responsible for any retests and sampling required should initial tests fail, at no additional expense to Owner.
 - a. Conditions causing additional testing and gradation testing (retests):
 - (1) Soil density does not meet project requirements
 - (2) Change in method of compaction
 - (3) Change in source or quality of bedding or backfill material
 - 2. Test soil materials for suitability for intended purpose. Determine mechanical analysis, liquid and plastic limit, and moisture-density curve

(ASTM D698/AASHTO T99) for each type of soil encountered. Test in accordance with standard recognized procedures.

- a. Perform at least two field density tests in random compacted backfill layers for every 400 linear feet of trench, or fraction thereof.
 - b. Density tests shall be at randomly selected locations and in accordance with ASTM D1556/AASHTO T191 or ASTM D2922/AASHTO T310.
3. Forward all test results to Engineer prior to Contractor receiving payment for related Work.
 4. Acceptable test results do not relieve the Contractor from making corrections to the tested work during the warranty period.

PART 2 - PRODUCTS

2.01 NATIVE BACKFILL MATERIAL

- A. Unless otherwise specified, use excavated material as backfill material. Use excavated material consisting of materials that, in the judgement of the Engineer, are suitable for backfilling.
- B. Topsoil, peat, organic soils, and materials containing slag, cinders, foundry sand, debris, and rubble, or soil with less than required bearing capacity as determined by Engineer are unsuitable materials.
- C. Backfill material shall be free of:
 1. Vegetable or other organic material.
 2. Concrete or concrete fragments.
 3. Stones larger than 3 inches.
 4. Frozen material.
 5. Blasted rock.

2.02 GRANULAR BEDDING

- A. Crushed Stone Bedding
 1. Provide $\frac{3}{4}$ " crushed rock bedding material of Soil Class A-7 in accordance to the appropriate Specification Section.

2.03 GRANULAR BACKFILL (SELECT BACKFILL MATERIAL)

- A. Provide granular backfill material in accordance to the appropriate Specification Section.

PART 3 - EXECUTION

3.01 EXISTING STRUCTURES AND UTILITIES

- A. Existing Underground Improvements:
 - 1. Location and size of existing underground improvements, including pipes, wires, culverts, and conduits, are shown on Drawings insofar as records are available or surface markings indicate.
 - 2. Prior to trenching, determine the exact location of underground structures and coordinate location with the owner(s) of the structures/utilities.
- B. Remove concrete or asphalt surfaced walks and pavements, trees and other site improvements in accordance with appropriate Specification Sections.
- C. Unknown Underground Structure:
 - 1. When unknown existing underground structure occupies space required for proposed utility, Contractor shall immediately notify Engineer.
 - 2. If change in location of proposed improvement is required, then Contractor shall arrange for all relocations.
- D. Underground structures or utilities that do not occupy space required for proposed utility, but are relocated for convenience of Contractor shall be paid for by Contractor.
- E. When proposed utility is installed below an existing structure, backfill area with granular fill and mechanically compact fill, in layers not to exceed 6 inches in depth, to 95% of standard proctor.

3.02 TRENCHING

- A. Remove and salvage topsoil in accordance to the appropriate Specification Sections.
- B. During trenching for new pipe or structures, remove existing pipe located in the same location or above the new pipe intended to replace existing pipe.

- C. Trench size shall be of adequate width and depth to allow proper construction of proposed utilities.
- D. Keep loss of pavement to a minimum within improved streets.
- E. Width of excavation below top of pipe shall be no more than 2 feet wider than outside diameter of pipe; except, minimum trench width shall be 30 inches.
- F. Excavate bell holes large enough to eliminate any excessive pressure on the bell.
- G. Unauthorized Over Excavation: Excavation below required level will be backfilled at Contractor's expense with suitable material and compacted to density of the undisturbed soil.
- H. Backfill Timing:
 - 1. Not more than 100 feet of trench is to be open in advance of pipe laying unless otherwise permitted by Engineer.
 - 2. In all cases, backfilling must occur within 200 feet of completed pipe laying.
- I. No compensation will be allowed for methods necessary to dry materials that have excessive moisture added due to surface water.

3.03 FOUNDATION

- A. Prepare a uniform foundation for pipe.
- B. Unstable Foundation:
 - 1. Remove and replace all undesirable material encountered below the trench bottom, such as organic soils, etc., which cannot adequately support the proposed pipe.
 - 2. Contact Engineer when unstable foundation material is encountered.

3.04 BEDDING

- A. Deposit all bedding material uniformly and simultaneously on each side of pipe to prevent lateral displacement.
- B. Plastic Pipe:
 - 1. Use granular bedding materials for all plastic pipe.
 - 2. Provide bedding as shown on Drawings, pipe embedment details.

3. Uniformly compact material under and around pipe.
 4. Shape bottom of bedding to fit contour of pipe.
- C. RCP and DIP
1. Bed pipe in carefully placed material on trench bottom as shown on the Drawings.

3.05 BACKFILL

- A. Provide pipe bedding as required for the type of pipe installed per pipe embedment details as shown on plans.
- B. Place backfill material in maximum 12-inch lifts.
- C. Backfill material not to include: debris, frozen material, large clods or stones, organic matter, or other unstable materials.
- D. Place backfill in such a manner that will not disturb alignment of pipe.

3.06 TRENCH COMPACTION

- A. Mechanical Compaction:
 1. Use mechanical compaction to compact backfill in trenches in 12-inch layers from one foot above top of pipe to finished grade to minimum density of 95% Standard Proctor.
- B. Areas Required: Mechanical compaction will be required for all trenches.
- C. Backfill trench to last pipe joint (not to exceed 10 feet) at the end of each work day.

3.07 DEWATERING TRENCHES

- A. Determine groundwater conditions.
- B. Provide and maintain necessary means and methods to dewater excavation as required.
- C. Dispose of water.
- D. Prevent runoff and dewatering system discharge from entering excavation.
- E. Secure permits from regulatory and governmental agencies governing dewatering.

1. If it becomes necessary to pump more than 70 gpm, then wells will be considered High Capacity Wells and shall be subject to WDNR approval as described in NR812.12 Wisconsin Administrative Code.
 2. Should High Capacity Wells be necessary, Contractor shall obtain appropriate permits from DNR at following location: Wisconsin Dept. of Natural Resources, Private Water Supply Section, PO Box 7921, Madison, WI 53707.
- F. Correct damage caused to private wells due to dewatering.
- G. Maintain a water supply to private and public wells affected by the dewatering operation.
- H. Dewater to a minimum depth of 12 inches below excavations.
- I. Maintain dewatering operation until backfill and compaction procedures are completed.
- J. Groundwater Disposal
1. Convey groundwater to point of discharge through pipelines.
 - a. Open ditches and trenches are not permitted.
 - b. Use of Owner's utilities not permitted without written consent.

3.08 EXCESS MATERIAL

- A. Disposal:
1. Responsibility of Contractor.
 2. Is considered incidental to pipe installation.
- B. Disposal of Surplus Excavated Material includes:
1. Remove surplus excavated material from the site as soon as it is determined it will not be used for backfill material.
 2. Dispose of pavement separately from soils material.
 3. Dispose of surplus material which includes:
 - a. Loading and hauling.
 - b. Dumping and leveling.

- c. Providing a dump site (when not specified by Owner).
 - (1) Conform with governing authorities including the obtaining of required permits.
 - (2) No limit on haul distance.
- 4. Do not dispose of excavated surplus material in state waters, floodplain, or wetlands without written approval of the appropriate regulatory agency.

END OF SECTION

SECTION 31 25 00
EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Temporary Erosion and Sediment Controls
 - a. Temporary Grading Practices for Erosion Control
 - b. Temporary Seeding
 - c. Temporary Earth Berm or Channel
 - d. Temporary Perimeter Control and Slope Products
 - e. Temporary Ditch Checks
 - f. Temporary Culvert Pipe Checks
 - g. Temporary Stone Tracking Pads
 - h. Temporary Dust Control
 - i. Dewatering
 - 2. Permanent Erosion and Sediment Control
 - a. Permanent Seeding and Fertilizing
 - b. Permanent Erosion Mats
 - c. Vegetative Buffers
 - d. Mulching
 - 3. Maintenance and Reporting

1.02 REFERENCES

- A. Wisconsin Department of Transportation (WisDOT)

WisDOT Erosion Control, Product Acceptability Lists for Multi-Modal Applications (PAL), latest edition.

B. American Society for Testing and Materials (ASTM)

ASTM D1388	Test Method for Stiffness of Fabrics
ASTM D2487	Test Method for Classification of Soils for Engineering Purposes
ASTM D3776	Test Method for Mass Per Unit Area (Weight) of Woven Fabric
ASTM D4355	Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
ASTM D4491	Test Method for Water Permeability of Geotextiles by Permittivity
ASTM D4632	Test Method for Grab Breaking Load and Elongation of Geotextiles
ASTM D4751	Test Method for Determining Apparent Opening Size of a Geotextile
ASTM D4833	Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
ASTM D5035	Test Method for Breaking Strength and Elongation of Textile Fabric (Strip Method)
ASTM D5338	Test Method for Determining Aerobic Biodegradation of Plastic Materials Under Controlled Composting Conditions

C. Wisconsin Department of Natural Resources (WDNR)

Stormwater Technical Standards,
<http://dnr.wi.gov/runoff/stormwater/techstds.htm>
Best Management Practices, Construction Site Inspection Report Form 3400-18

D. Local erosion control plans and ordinances.

1.03 SUBMITTALS

A. Action Submittals

1. Product Data
 - a. Provide product data showing listed on WisDOT PAL approval list.
 - b. Provide product data for manufactured products demonstrating conformance with the Specification.
2. Delegated Design Submittals
 - a. Provide plan for additional proposed erosion and sediment control.
 - b. Provide rip rap design for severe erosion is anticipated.

- B. Informational Submittals
 - 1. Field or Site Quality Control Submittals
 - a. Submit weekly to Engineer one (1) copy of erosion control Construction Site Inspection Report(s).

PART 2 - PRODUCTS

2.01 SEED

- A. Temporary Seeding
 - 1. Provide seed species and application rates in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard #1059 "Seeding".
 - 2. Fertilizer is not required.
- B. Permanent Seeding
 - 1. Provide permanent seeding and fertilizer including vegetative buffers in accordance with the appropriate Specification Section.

2.02 TEMPORARY PERIMETER CONTROL AND SLOPE INTERRUPTION PRODUCTS

- A. Provide perimeter control and slope interruption products in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard #1071 "Interim Manufactured Perimeter Control and Slope Interruption Products".
- B. Products shall be listed on WisDOT Erosion Control, Product Acceptability Lists for Multi-Modal Applications (PAL), latest edition for the appropriate application.

2.03 ROCK FILLED FILTER BAGS

- A. Rock Filled Filter Bags
 - 1. Minimum unfilled size of 18" x 30".
 - 2. Construct bag of high-density polyethylene as manufactured by Erotex.
 - 3. Seal bag with a high-density polyethylene drawstring knitted directly into the bag opening in a rolled seam using minimum of 480 denier polyester sewing yarn.

4. Fill bag with well graded coarse aggregate conforming to Soil Class A-7 in accordance to the appropriate Specification Section.

B. Support Posts

1. Wood or steel construction, minimum length 4 feet.
2. Wood Posts: 2" x 2" or equivalent steel posts.

2.04 SILT FENCE

A. Geotextile Fabric

1. Provide either woven or non-woven polyester, polypropylene, stabilized nylon, polyethylene or polyvinylidene chloride fabric.
2. Provide fabric with the minimum strength values in the weakest principal direction.
3. Non-woven fabric may be needle punched, heat bonded, resin bonded or combination thereof.
4. Fabric shall meet the following requirements:
 - a. If silty soils on-site then the following can be used:
 - (1) Grab Tensile Strength: ASTM D4632 101 lbs. (450 N)
 - (2) Apparent Opening Size: ASTM D4751 0.3 mm
 - (3) UV Resistance Strength Retained: ASTM D4355 70 at 500 Hours (%)
 - (4) Permittivity (per second): ASTM D4491 0.14
 - b. If sandy soils on-site then the following can be used:
 - (1) Grab Tensile Strength: ASTM D4632 101 lbs. (450 N)
 - (2) Apparent Opening Size: ASTM D4751 0.3 mm to 0.8 mm
 - (3) UV Resistance Strength Retained: ASTM D4355 70 at 500 Hours (%)
 - (4) Permittivity (per second): ASTM D4491 0.14

- B. Support Posts
 - 1. Wood or steel construction minimum length 5 feet.
 - 2. Wood posts - 2" x 2" or equivalent steel posts.
- C. Silt fence shall conform to the Wisconsin Department of Natural Resources Conservation Practice Standard #1056 "Silt Fence".

2.05 STONE TRACKING PADS

- A. Provide 3" to 6" clear or washed stone aggregate.
- B. All material shall be retained on a 3-inch sieve.

2.06 EROSION MATS

- A. Provide non-channel erosion mat products in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard #1052 "Non-Channel Erosion Mat".
- B. Provide channel erosion mats products in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard #1053 "Channel Erosion Mat".
- C. Products shall be listed on WisDOT Erosion Control, Product Acceptability Lists for Multi-Modal Applications (PAL), latest edition for the appropriate application.
- D. Netting
 - 1. Netting, if used, shall not exceed 15% of the total blanket weight.
 - 2. Bond the netting to the parent material to prevent separation for the life of the project (minimum two months).
- E. Provide 100% organic biodegradable netted products, including parent material, stitching, and netting.
- F. Anchoring Devices
 - 1. Anchoring and components for temporary erosion mats shall be completely biodegradable as determined by ASTM D5338.
 - 2. Materials shall be environmentally safe for soil and groundwater.
 - 3. Do not use petroleum based plastics or composites.

4. Do not use materials which may present a hazard from splintering or spearing.
5. Design anchors to hold a minimum of two months and be substantially degraded within four months during the summer (warm soil conditions).

2.07 MULCH

- A. Provide mulch materials in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard #1058 "Mulching for Construction Sites".
- B. Mulch Anchoring Devices
 1. Where netting is required use polypropylene plastic, or biodegradable netting
 2. Tackifiers
 - a. Latex Base
 - (1) Latex emulsion polymer by weight shall consist of:
 - (2) Styrene (%): 48
 - (3) Butadien (%): 50
 - (4) Additive (%): 2
 - (5) Percent Solids: 42 to 46
 - (6) pH (as shipped): 8.5 to 10.0
 - (7) Emulsion shall not be frozen at any time or exposed to sunlight for extended periods of time.
 - b. Guar Gum
 - (1) Minimum of 95% guar gum by weight.
 - (2) Remaining weight shall consist of dispersing and cross-linking additives.

c. Other Tackifiers

(1) Other tackifiers shall include the following, but not limited to:

- i) Water soluble natural vegetable gums.
- ii) Guar gums blended with gelling and hardening agents.
- iii) Water soluble blend of hydrophobic polymers, viscosifiers, sticking aids, and other gums.

PART 3 - EXECUTION

3.01 TEMPORARY EROSION AND SEDIMENT CONTROLS

A. General

1. Provide temporary erosion and sediment controls as shown on Drawings and additional erosion and sediment controls as determined by Contractor to be required based on construction means and methods prior to start of excavation.
2. Submit to Engineer proposed plan for additional erosion and sediment controls.
3. Minimize disturbed areas.
4. Place excavated trench material on the high side of the trench where appropriate.
5. Locate soil stockpiles no closer than 25 feet of a roadway, wetland, or drainage control channel and control by covering the pile with tarpaulins, temporary seed and mulch or other suitable means, if the pile is exposed for 14 days or more.
6. When it is necessary to cross waterways, provide crossing structures for machinery.
7. Repair, replace, and maintain erosion and sedimentation structures until vegetation is re-established or permanent structures installed.
8. Remove temporary erosion control structures and accumulated sediment and/or debris when vegetation is established.

- B. Temporary Grading Practices for Erosion Control
 - 1. Provide construction operations to minimize erosion and sediment transport during grading operations and other excavations.
 - 2. Provide grade practices in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard #1067 "Grading Practices for Erosion Control - Temporary".
- C. Temporary Seeding
 - 1. Provide temporary seeding to disturbed exposed soil areas that will not be brought to final grade or on which land-disturbing activities will not be performed for a period greater than 30 days, and requires vegetative cover for less than one year.
 - 2. Provide temporary seeding in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard #1059 "Seeding".
- D. Temporary Earth Berm or Channel
 - 1. Provide an earth berm or channel to intercept, or convey surface water runoff located above disturbed areas to limit runoff onto the site, across slopes to reduce slope length, below slopes to divert excess runoff to stabilized outlets, at or near the perimeter of the construction site to keep sediment from leaving the site, and diversions of sediment-laden water to sediment control facilities.
 - 2. Provide earth berms or channels in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard #1066 "Construction Site Diversion".
- E. Temporary Perimeter Control and Slope Interruption Products
 - 1. Provide perimeter control and slope interruption products, other than sediment bale barriers and silt fence covered elsewhere, to detain or slow the flow of sediment-laden sheet flow runoff from small areas of disturbed soil.
 - 2. Provide these products to reduce uninterrupted slope length to slow the velocity of runoff to retain transported sediment from disturbed areas.
 - 3. Provide perimeter control and slope interruption products in accordance with the Wisconsin Department of Natural Resources Conservation

Practice Standard #1071 "Interim Manufactured Perimeter Control and Slope Interruption Products".

F. Temporary Ditch Checks

1. Provide temporary ditch checks prior to working near or adjacent to swales, ditches, channels and other areas of concentrated flow.
2. Construct temporary ditch checks with erosion bales, rock filled filter bags, manufactured ditch check products or rip rap.
3. Support with wood or steel posts.
4. Periodically remove sediment to maintain effective function.
5. Provide ditch checks in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard #1062 "Ditch Check (Channel)".

G. Temporary Culvert Pipe Checks

1. Provide rock filled filter bags immediately after installing new culverts and before beginning earth-disturbing activities in areas drained by existing culverts.
2. Place rock bags on the inlet end of the culvert only.
3. Leave rock bags in place until slopes and ditches are stable and turf develops enough to make future erosion unlikely.
4. Periodically remove sediment to maintain effective function.

H. Temporary Stone Tracking Pads

1. Provide stone gravel mats at site vehicle entrance and site exit locations to prevent tracking of soil on roads or other pavements.
2. Collect tracked soil and clean from paved roads near the construction site the same day it occurs.
3. Provide stone tracking pads in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard #1057 "Stone Tracking Pad and Tire Washing".

- I. Temporary Dust Control
 - 1. Provide dust control measures for construction activities including minimizing soil disturbance, applying mulch and establishing vegetation, water spraying, surface roughening, applying additives (polymers), spray-on tackifiers, chlorides, and barriers.
 - 2. Provide dust control in accordance with the Wisconsin Department of Natural Resources Conservation Practice #1068 "Dust Control On Construction Sites".

- J. Dewatering
 - 1. Discharge trench water to filter barrier prior to release into a drainage way.
 - 2. Provide a compartmented container, settling basin, filter, or other appropriate best management practice through which sediment-laden water is conveyed to trap and retain the sediment.
 - 3. Remove sediment from water generated from dewatering activities in accordance with Wisconsin Department of Natural Resources Conservation Practice #1061 "Dewatering".

3.02 PERMANENT EROSION AND SEDIMENT CONTROL

- A. Permanent Seeding and Fertilizing
 - 1. Provide in accordance to the appropriate Specification Sections.

- B. Permanent Erosion Mats
 - 1. Provide erosion mats to protect channels and slopes from erosion and act as turf reinforcement during and after the establishment of grass.
 - 2. Site Preparation
 - a. Place seed and fertilizer prior to placing permanent erosion mat.
 - b. Seed and fertilizer may be placed after permanent erosion mat installation with Engineer's approval.
 - c. Ground surface shall be smooth and compact.
 - d. Remove all rocks, dirt clods, stumps, roots, grass clumps, trash and other obstructions from lying in direct contact with the soil surface and the erosion mat.

3. Installation:
 - a. Refer to Drawings for anchor trench (at ends, checks and edges) installation procedures.
 - b. Anchor trenches shall be 12" deep.
 - c. Compact anchor trench backfill.
 - d. Place staples in end and check trenches spaced at 12 inches.
 - e. Provide in accordance with manufacturer's recommendations.
 - f. Roll width overlaps shall be 12" at edges. Pin or staple every 3 feet along overlap length.
 - g. Splice roll end overlaps by overlapping (in the direction of water flow) two feet with the upstream portion of the mat on top of the downstream portion. This overlap shall receive at least three pins or staples with a maximum spacing of 12".
 - h. Pins or staples shall be 18" in length minimum driven flush with the mat.
 - i. Place mat flat conforming to contours in soil surface. Do not stretch mat.
 - j. Place mat from toe of slope toward top of slope.
4. Provide non-channel erosion mat in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard #1052 "Non-Channel Erosion Mat".
5. Provide channel erosion mats in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard #1053 "Channel Erosion Mat".

C. Vegetative Buffers

1. Provide minimum 25-foot wide dense vegetation in areas where sediment delivery is in the form of sheet and rill erosion from disturbed areas.
2. Locate the vegetative buffer along the entire length of the down slope edge of the entire disturbed area.

3. Provide vegetative buffers in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard #1054 "Vegetative Buffer for Construction Sites".
- D. Mulching
1. Provide mulching on exposed soils in conjunction with temporary or permanent seeding.
 2. Anchoring Mulch
 - a. In areas establishing lawn type turf, use of tackifiers as the anchoring method.
 - b. In areas of temporary seeding, provide crimping to anchor the mulch.
 - c. In areas between a roadway curb and the property line, provide netting to anchor the mulch.
 3. Provide mulching in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard #1058 "Mulching for Construction Sites".
- E. Soil Additives for Erosion Control
1. Provide soil additives where timely establishment of vegetative cover is absent or inadequate due to land disturbing activities or winter shutdown prevent establishment or maintenance of a cover crop.
 2. Provide in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard #1050 "Land Application of Additives for Erosion Control".

3.03 MAINTENANCE

- A. Provide inspections of the construction site and implemented erosion and sediment control WDNR best management practices (BMPs) performed weekly and within 24 hours after a rainfall event of 0.5 inches or greater and rapid snow melt conditions.
1. Make any required repairs immediately.
 2. Maintain temporary erosion and sedimentation control structures until permanent soil erosion controls are completed and/or vegetation is established.

- a. Repair damaged structures.
- b. Replace lost structures.
- 3. Regularly remove sediment from deposition areas adjacent to erosion control structures without damaging structures.
- 4. Refill eroded areas as required for grade stabilization.
- B. If the fabric on a silt fence or filter barrier decomposes or becomes ineffective prior to the end of the expected usable life and the barrier is still to be necessary, replace the fabric promptly.
- C. Remove sediment deposits after each major storm event and when deposits reach approximately one-half the height of the barrier.
- D. Remove any sediment deposits remaining in place after the silt fence or filter barrier is no longer required and dress to conform with the existing grade, prepared and seeded.
- E. Repair/restore any washed out areas.
- F. Maintenance period to be entire project period including the one-year Correction Period.
- G. Owner may direct Contractor to remove the temporary erosion control measures any time during the one-year Correction Period.
- H. Construct permanent erosion control measures immediately after earthwork is completed.

3.04 ATTACHMENT(S)

- A. Construction Site Inspection Form.

END OF SECTION

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CONSTRUCTION SITE INSPECTION REPORT
Form 3400-187 (R 11/16)

State of Wisconsin
Department of Natural Resources (DNR)
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Notice: This form was developed in accordance with s. NR 216.48 Wis. Adm. Code for WPDES permittees' convenience; however, use of this specific form is voluntary. Multiple copies of this form may be made to compile the inspection report. Inspections of the construction site and implemented erosion and sediment control best management practices (BMPs) must be performed weekly and within 24 hours after a rainfall event 0.5 inches or greater.

Construction Site Name and Location (Project, Municipality, and County): _____		Site/Facility ID No. (FIN): _____	
Onsite Contact/Contractor: _____		Onsite Phone/Cell: _____	
Note: Inspection reports, along with erosion control and storm water management plans, are required to be maintained on site in accordance with s. NR 216.48 (4) and made available upon request. PLEASE PRINT LEGIBLY.			
Date of inspection:	Time of inspection: Start: _____ am <input type="radio"/> pm End: _____ am <input type="radio"/> pm	Type of inspection: <input type="radio"/> Weekly <input type="radio"/> Precipitation Event <input type="radio"/> Other (specify) _____	
Weather/Site Conditions: Temp. _____ °F Antecedent _____ Soil Moisture _____ Last Rainfall Depth: _____ inches Last Rainfall Date: _____	Describe current phase of construction: Scheduled Final Stabilization Date for Universal Soil Loss Equation (USLE) ¹ : _____ Project on Schedule? <input type="radio"/> Yes <input type="radio"/> No Inspector Phone/Cell: _____		
Name(s) of individual(s) performing inspection: _____			
I certify that the information contained on this form is an accurate assessment of site conditions at the time of inspection:			
Inspector Signature _____	Date: _____		Location/Comments: _____
Inspection Questions:	Yes	No (Identify Actions Required):	Actions Completed by Date & Initials
1. Is the erosion control plan accessible to operators?	<input type="checkbox"/>	<input type="checkbox"/> Provide onsite copy	
2. Is the permit certificate posted where visible?	<input type="checkbox"/>	<input type="checkbox"/> Post certificate	
3. Is the current phase of construction on sequence with the site-specific erosion and sediment control plan, including installation/stabilization of ponds and ditches?	<input type="checkbox"/>	<input type="checkbox"/> Add sediment control <input type="checkbox"/> Install missing ditch/pipe/pond <input type="checkbox"/> Stabilize bare soil	
4. Are all erosion and sediment control BMPs shown on plan properly installed and in functional condition?	<input type="checkbox"/>	<input type="checkbox"/> Repair <input type="checkbox"/> Modify <input type="checkbox"/> Install/Replace	
5. Is inlet protection properly installed and functioning in all inlets likely to receive runoff from the site?	<input type="checkbox"/>	<input type="checkbox"/> Clean <input type="checkbox"/> Replace <input type="checkbox"/> Install	
6. Is the air free of fugitive dust resulting from construction activity and bare soil exposure?	<input type="checkbox"/>	<input type="checkbox"/> Apply water <input type="checkbox"/> Apply dust control product	

¹ The Universal Soil Loss Equation (USLE) model and the Construction Site Soil Loss and Sediment Discharge Guidance are available at: http://dnr.wi.gov/topic/stormwater/standards/const_standards.html

Inspection Questions:	Yes	No (Identify Actions Required):	Location/Comments:	Actions Completed by Date & Initials
7. Is the public right of way curb line free of tracked soil and accumulation?	<input type="checkbox"/>	<input type="checkbox"/> Install tracking pad <input type="checkbox"/> Widen/lengthen pad <input type="checkbox"/> Amend stone/Add geotextile <input type="checkbox"/> Install wheel washing station <input type="checkbox"/> Close entrance/exit <input type="checkbox"/> Limit traffic across disturbed areas <input type="checkbox"/> Sweep road and curb line		
8. Are wetlands, lakes, streams, ditches, or storm sewers downstream of the site free of sedimentation and turbid water leaving the site? ³	<input type="checkbox"/>	<input type="checkbox"/> Repair/Replace erosion control <input type="checkbox"/> Add sediment controls <input type="checkbox"/> Modify operations <input type="checkbox"/> Contact DNR to verify extent of cleanup required		
9. Is dewatering and/or vehicle and equipment washing being done in a manner that prevents erosion and sediment discharge?	<input type="checkbox"/>	<input type="checkbox"/> Install treatment train <input type="checkbox"/> Install energy dissipation <input type="checkbox"/> Modify discharge location <input type="checkbox"/> Modify intake to reduce sediment		
10. Are soil stockpiles existing for more than 7 days covered and stabilized?	<input type="checkbox"/>	<input type="checkbox"/> Seed <input type="checkbox"/> Install mat/mulch/polymer <input type="checkbox"/> Cover with tarp/plastic sheeting		
11. Are downstream channels and other downhill areas protected from scour and erosion?	<input type="checkbox"/>	<input type="checkbox"/> Install energy dissipation at outfall <input type="checkbox"/> Install ditch checks <input type="checkbox"/> Install slope interruption <input type="checkbox"/> Install onsite detention		
12. Are good housekeeping practices or treatment controls in place to prevent the discharge of chemicals, cement, trash, and other materials into wetlands, waterways, storm sewers, ditches, or drainage-ways? ⁴	<input type="checkbox"/>	<input type="checkbox"/> Properly dispose of trash <input type="checkbox"/> Provide concrete washout station <input type="checkbox"/> Contact DNR to verify extent of cleanup required		
13. Is the plan reflective of current site operations and does it address all erosion and sediment control issues identified during the inspection?	<input type="checkbox"/>	<input type="checkbox"/> Revise sequence <input type="checkbox"/> Revise sediment control BMP <input type="checkbox"/> Revise erosion control BMP <input type="checkbox"/> Revise post-construction storm water BMP		
14. Are all areas where construction has temporarily ceased (and will not resume for more than 2 weeks) temporarily stabilized?	<input type="checkbox"/>	<input type="checkbox"/> Topsoil & seed <input type="checkbox"/> Install mat/mulch/polymer <input type="checkbox"/> Cover with tarp/plastic sheeting		
15. Are all areas at final grade permanently vegetated or stabilized with other treatments?	<input type="checkbox"/>	<input type="checkbox"/> Topsoil & seed <input type="checkbox"/> Install mat/mulch/polymer <input type="checkbox"/> Sod <input type="checkbox"/> Install stone base		
16. Have temporary sediment controls been removed in areas of the site that meet the permit definition of 'final stabilization'?	<input type="checkbox"/>	<input type="checkbox"/> Water to establish vegetation <input type="checkbox"/> Repair or reseed areas <input type="checkbox"/> Remove temporary practices		

³ If sediment discharge enters a wetland or waterbody, the permittee should consult with DNR staff to determine if sediment cleanup and/or additional control measures are required.

⁴ The permittee shall notify the DNR immediately via the spills hotline at (800)943-0003 of any release or spill of a hazardous substance to the environment in accordance with s. 292.11, Wis. Stats., and ch. NR 706, Wis. Adm. Code.

SECTION 32 05 13
SOILS FOR EXTERIOR IMPROVEMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Bank Run Soils
 - 2. Manufactured and Special Soils

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - ASTM C144 Spec. for Aggregate for Masonry Mortar
 - ASTM C207 Spec. for Hydrated Lime for Masonry Purposes
 - ASTM C602 Spec. for Agricultural Liming Materials
 - ASTM D75 Sampling Aggregates
 - ASTM D422 Particle Size Analysis of Soils
 - ASTM D1140 Test for Amount of Material in Soils Finer than the No. 200 Sieve
 - ASTM D2216 Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil Aggregate Mixtures
 - ASTM D2487 Classification of Soils for Engineering Purposes
 - ASTM D4318 Test Method for Liquid Limit, Plastic Limit, and Plasticity of Soils
 - ASTM D5268 Standard Specification for Topsoil Used for Landscaping Purposes

1.03 ALLOWANCES

- A. If so stated in the specification "Allowances", installation testing will be paid as an allowance. All other testing will be incidental to the Work.
- B. If there is no reference in the specification section to "Allowances", then testing costs will be incidental to other Work items.

1.04 SUBMITTALS

- A. Informational Submittals
 - 1. Test and Evaluation Reports

- a. Provide test reports showing the results of required material testing.
 - b. Provide topsoil analysis performed in accordance with ASTM D5268 and demonstrating the topsoil meets Soil Conservation Service specified soil types. Also, submit results of test for nutrient levels and provide recommendations for fertilizer type and application.
2. Field or Site Quality Control Submittals
 - a. Daily delivery tickets for each load of material delivered to the site.

1.05 QUALITY ASSURANCE

- A. An independent testing laboratory approved by the Owner shall be obtained by the Contractor and provide quality control testing.

PART 2 - PRODUCTS

2.01 BANK RUN SOILS

- A. Soil Class D-1 and D-2 (Structure, Unstable Materials, Piping Removals, and Subgrade Improvement Backfill Material)
 1. Provide rounded or sub-angular virgin material of either sand-sized particles or sand-sized particles mixed with gravel, crushed gravel, or crushed stone resulting from pit run or crushed material.
 2. Materials shall be free from clay lumps, organic matter, and deleterious substances.
 3. One hundred percent by weight shall pass a 3-inch sieve and 25 to 100 percent shall pass the No. 4 sieve.
 4. Maximum liquid limit shall be 25 percent and maximum plasticity index equal to 6.
 5. No frozen material.
 6. The portion of material which passes a No. 4 sieve shall conform to the following gradation limits:

Maximum Percent Passing By Weight

<u>Sieve Size</u>	<u>Class D-1 Percent</u>	<u>Class D-2 Percent</u>
No. 4	100	100
No. 40	0 – 75	-----
No. 100	0 – 15	0 - 30
No. 200	0 – 8.0	0 – 15.0

B. Soil Class D-3 (Sand)

1. Well graded, unwashed bank run or crushed bank run which is free from clay lumps, organic matter, and other deleterious substances with gradation as follows:

<u>Sieve Size</u>	<u>Percent Passing by Weight</u>
¾-inch	100
No. 4	90-100
No. 10	45-90
No. 40	15-45
No. 200	0-10

C. Soil Class E-1 (Clay)

1. Minimum 50 percent by weight passing the No. 200 sieve.
2. For the fraction passing the No. 40 sieve, the minimum plasticity index shall be 15.
3. Minimum Atterberg liquid limit of 30.
4. Free from organic material, boulders, cobbles, excessive amounts of gravel (greater than ¾-inch), and other deleterious substances.

D. Soil Class F-1 (Topsoil)

1. Topsoil shall meet the definition and specification stated in ASTM D5268 and meets one of the following SCS (Soil Conservation Service) soil textures:
 - a. Loam.
 - b. Sandy loam.
 - c. Silt loam.
 - d. Silty clay loam.

- e. Clay loam.
 - 2. The topsoil shall consist of adequate mineral content to support the growth of the intended vegetation and shall not contain herbicides that would be detrimental for the intended use.
 - 3. The topsoil shall have adequate fertility for quick establishment of vegetation.
 - 4. The pH of the topsoil shall be between 6.0 and 7.0.
 - 5. Topsoil shall be free from deleterious substances.
 - 6. Pulverize and screen the topsoil such that 100 percent passes the 1-inch (25 mm) sieve and at least 90 percent passes the No. 10 (2.00 mm).
- E. Soils Class F-2 (Compost/Topsoil)
- 1. Same as Topsoil above except compost/topsoil defined as a mixture of topsoil and soil that is a byproduct of composting (compost).
- F. Soil Class G-1 (Clean Earth Fill #1)
- 1. Any soil material excavated on the project site or obtained from borrow areas.
 - 2. Soil materials unsuitable and, therefore, not approved for this classification are:
 - a. Soils with high organic contents such as: topsoil, peat, muck, organic silts, and clays, marls, etc.
 - b. Manmade or rubble filled soils containing such materials as: foundry sand, fly ash cinders, asphalt, and concrete rubble, etc.
 - c. Silty soils such as: rock flour, loess, etc.
 - d. Soils with gravel larger than 3-inch.
 - e. Silty clay or clays with a high plasticity (CH soils as defined in ASTM D2487).
 - f. All soil contaminated with hazardous waste materials as defined by the EPA.
- G. Soils Class G-2 (Clean Earth Fill #2)

1. Same as Clean Earth Fill #1 above except shall not contain gravel larger than 1½-inch.

2.02 MANUFACTURED AND SPECIAL SOILS

A. Soil Class H-1 (Polymer Treated and Chemically Treated Bentonite)

1. Bentonite is defined as being largely composed of sodium montmorillonite (a clay mineral).
2. Contain an optimum level of anionic, non-ionic, or organic polymer to maximize wetting, expansion, and dispersing action in all types of soils.
3. Shall be high swelling which is defined as the ability of 2 grams of the base bentonite, when mechanically reduced to -100 sieve, to swell in water to an apparent volume of 16.0 cc's, or more when added a little at a time to 100 cc's of distilled water in a graduate. Swelling action shall be indefinitely reversible.
4. Shall have a colloid content exceeding 85 percent as measured by evaporating the suspended portion of a 2 percent solution after 24 hours of sedimentation in a graduated beaker.
5. Shall have a mineralogical composition of 90 percent minimum montmorillonite with 10 percent maximum sediments of feldspar, micas, and unaltered volcanic ash.
6. No frozen material.

B. Soil Class H-1 (Polymer Treated Bentonite)

1. Have properties equal to American Colloid Company Volcloy SG-40 Federal Bentonite Fluid Stop 610, or equal.

C. Soil Class H-2 (Chemically Treated Bentonite)

1. Chemical treated to resist reaction and degradation from contact with the contaminant being stored.
2. Have properties and composition equal to America Colloid Company Volcloy Saline Seal - 100, Federal Bentonite Marine Seal 123, or equal.

D. Soil Class J-1 (Agricultural Limestone)

1. Conform to ASTM C602.
2. Ground or crushed limestone.

3. Neutralization index of not less than 40 or more than 109.
 4. Meet the following gradation:
 - a. Passing a No. 4 sieve - 100 percent.
 - b. Passing a No. 10 sieve - 90 to 100 percent.
 - c. Passing a No. 50 sieve - 50 to 100 percent.
- E. Soil Class J-2 (Hydrated Lime)
1. Consists of essentially calcium, hydroxide or a mixture of calcium hydroxide, magnesium oxide, and magnesium hydroxide.
 2. Dry powder obtained by treating quick lime with enough water to satisfy its chemical affinity for water under the conditions of its hydration.
 3. Hydrated lime shall conform to the requirements of ASTM C207, Type N or S.

2.03 SOURCE QUALITY CONTROL

- A. Tests and Inspections
1. To establish acceptability of material, perform tests for each soils class in accordance to the following standards:
 2. Structure Backfill Material and Sand:
 - a. ASTM C117
 - b. ASTM C136
 - c. ASTM D1241
 - d. ASTM D2487
 3. Clay Soil:
 - a. ASTM C136 (test when gravel content is present)
 - b. ASTM D422
 - c. ASTM D1140
 - d. ASTM D2216

- e. ASTM D4318
- 4. Topsoil and Compost/Topsoil:
 - a. ASTM D2487
- 5. Clean Earth Fill:
 - a. ASTM D2487
- 6. In addition to the above, furnish a soil analysis of Topsoil and Compost/Topsoil:
 - a. pH
 - b. Phosphorus
 - c. Potassium
 - d. Soluble Salts
 - e. Calcium
 - f. Magnesium
- 7. Source sample all soils in accordance with ASTM D75.
- 8. Perform one (1) acceptable test for each type of material at each source.

PART 3 - EXECUTION

3.01 APPLICATION

- A. Use the soil classification as specified or stated in Specification Sections or on Drawings.
- B. Place material in accordance with the Drawings and appropriate Specification Sections for the type of work performed.

END OF SECTION

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SECTION 32 05 16
AGGREGATES FOR EXTERIOR IMPROVEMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Crushed Rock
 - 2. Concrete Aggregate
 - 3. Crushed Stone and Gravel
 - 4. Granular Backfill
 - 5. Sand

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - ASTM C33 Specification for Concrete Aggregates.
 - ASTM C88 Test for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
 - ASTM C117 Test for Material Finer than No. 200 Sieve in Mineral Aggregates by Washing.
 - ASTM C131 Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
 - ASTM C136 Sieve Analysis of Fine and Coarse Aggregates.
 - ASTM C144 Spec. for Aggregate for Masonry Mortar.
 - ASTM C207 Spec. for Hydrated Lime for Masonry Purposes.
 - ASTM C535 Test for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
 - ASTM D75 Sampling Aggregates.
 - ASTM D448 Spec. for Standard Sizes of Coarse Aggregate for Highway Construction.
 - ASTM D1241 Spec. for Materials for Soil-Aggregate Subbase, Base, and Surface Courses.
 - ASTM D2216 Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil Aggregate Mixtures.
 - ASTM D2487 Classification of Soils for Engineering Purposes.
 - ASTM D4318 Test Method for Liquid Limit, Plastic Limit, and Plasticity of Soils.

1.03 ALLOWANCES

- A. If so stated in the specification “Allowances”, installation testing will be paid as an allowance. All other testing will be incidental to the Work.
- B. If there is no reference in the specification section to “Allowances”, then testing costs will be incidental to other Work items.

1.04 SUBMITTALS

- A. Informational Submittals
 - 1. Source Quality Control Submittals
 - a. Provide test reports showing the results of required material testing.
 - 2. Daily delivery tickets for each load of material delivered to the site.

1.05 QUALITY ASSURANCE

- A. An independent testing laboratory approved by the Owner shall be obtained by the Contractor and provide quality control testing.

PART 2 - PRODUCTS

2.01 CRUSHED ROCK

- A. General
 - 1. Material shall be clean, sound, hard, dense, durable, field or quarry stone which is free from seams, cracks, or other structural defects. It shall be angular material from shot rock (blasted) or crushed rock having substantially all face of which have resulted from artificial crushing.
 - 2. Loss due to sulfate soundness test shall not exceed 10 percent.
 - 3. Loss due to abrasion test shall not exceed 40 percent.
 - 4. No frozen material.
- B. 6” Crushed Rock or Breaker Run Gradation (Soil Class A-3)

<u>Sieve Size</u>	<u>% Passing by Weight</u>
7-inch	100
6-inch	90
4-inch	75
3-inch	10

C. 3½-inch Crushed Rock Gradation (Soil Class A-4)

1. ASTM D448-No. 1

<u>Sieve Size</u>	<u>% Passing by Weight</u>
4-inch	100
3½-inch	90-100
2½-inch	25-60
1½-inch	0-15
¾-inch	0-5

D. 2½-inch Crushed Rock Gradation (Soil Class A-5)

1. ASTM D448-No.2

<u>Sieve Size</u>	<u>% Passing by Weight</u>
3-inch	100
2 ½ inch	90-100
2-inch	35-70
1 ½-inch	0-15
¾-inch	0-5

E. 1½-inch Crushed Rock Gradation (Soil Class A-6)

1. ASTM D448-No. 4

<u>Sieve Size</u>	<u>% Passing by Weight</u>
2-inch	100
1 1/2 inch	90-100
1-inch	20-55
¾ inch	0-15
3/8 inch	0-5

F. ¾-inch Crushed Rock Chips Gradation (Soil Class A-7)

1. ASTM D448-No. 67

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1-inch	100
¾-inch	90-100
3/8-inch	20-55
No. 4	0-10
No. 8	0-5

G. 3/8-inch Crushed Rock Chips Gradation (Soil Class A-8)

1. ASTM D448-No. 8

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1/2-inch	100
3/8-inch	85-100
No. 4	10-30
No. 8	0-10
No. 16	0-5

2.02 CONCRETE AGGREGATE

A. General

1. Aggregate shall be hard, strong, durable particles free from seams, cracks, and other structural defects.
2. Rounded to subangular.
3. Free from organic impurities and debris.
4. No frozen material.

B. Coarse Aggregate Gradation (Soils Class B-1)

1. ASTM C33 - No. 3

<u>Sieve Size</u>	<u>% Passing by Weight</u>
2 1/2-inch	100
2-inch	90-100
1 1/2-inch	35-70
1-inch	0-15
1/2-inch	0-5

C. Coarse Aggregate Gradation (Soil Class B-2)

1. ASTM C33 - No. 7

<u>Sieve Size</u>	<u>% Passing by Weight</u>
¾-inch	100
½-inch	90-100
3/8-inch	40-70
No. 4	0-15
No. 8	0-5

D. Fine Aggregate Gradation (Soil Class B-3)

1. ASTM C33

<u>Sieve Size</u>	<u>% Passing by Weight</u>
3/8-inch	100
No. 4	95-100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	10-30
No. 100	2-10

E. Masonry Sand Gradation (Soil Class B-4)

1. ASTM C144

<u>Sieve Size</u>	Percent Passing	
	<u>Natural Sand</u>	<u>Manufactured Sand</u>
No. 4	100	100
No. 8	95 to 100	95 to 100
No. 16	70 to 100	70 to 100
No. 30	40 to 75	40 to 75
No. 50	10 to 35	20 to 40
No. 100	2 to 15	10 to 25
No. 200	---	0 to 10

2.03 CRUSHED STONE AND GRAVEL

A. General

1. Stone shall be hard, durable, granular material of uniform quality resulting from crushed rock or crushed bank run sand and gravel.
2. Material shall be free from clay lump, organic matter, shale, excess, elongated or flat pieces, and other deleterious substances.
3. Forty-five percent of the particles retained on a No. 4 sieve shall have at least one fractured face.
4. Wear shall not exceed 50 percent.
5. Loss due to sulfate soundness test shall not exceed 18 percent by weight.
6. Total moisture content shall not exceed 7 percent.
7. Filler for blending shall have a maximum liquid limit of 25 percent and a maximum plasticity index of 6.
8. No frozen material.

B. Crushed Stone Gradation (Soil Class C-1)

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1 ½-inch	100
3/8-inch	30-65
No. 4	25-55
No. 10	15-40
No. 200	2-12

C. Crushed Stone Gradation (Soil Class C-2)

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1-inch	100
3/8-inch	40-75
No. 4	25-60
No. 10	15-45
No. 200	3-12

D. Crushed Stone Gradation (Soil Class C-3)

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1-inch	100
¾-inch	95-100
3/8-inch	50-90
No. 4	35-70
No. 10	15-55
No. 200	5-15

E. Crushed Gravel Gradation (Soil Class C-4)

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1 1/2-inch	100
1-inch	75-100
3/8-inch	40-75
No. 4	30-60
No. 10	20-45
No. 40	10-30
No. 200	3-10

F. Crushed Gravel Gradation (Soil Class C-5)

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1-inch	100
3/8-inch	50-85
No. 4	35-65
No. 10	25-50
No. 40	10-30
No. 200	3-10

G. Crushed Gravel Gradation (Soil Class C-6)

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1-inch	100
¾-inch	95-100
3/8-inch	50-90
No. 4	35-70
No. 10	20-55
No. 200	8-15

2.04 GRANULAR BACKFILL

A. Provide granular material substantially free of deleterious materials that include: shale, chert, phyllite or other altered rock formed from clay materials, soft or porous rock fragments, clay lumps, coal, and other non-durable or organic particles. The aggregate material crushed stone or crushed gravel. No stones over 3-inch sieve shall be present. Granular backfill shall be 1 1/4 inch dense aggregate conforming to the following gradation:

B. Granular Backfill Gradation

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1 ¼ inch	95 – 100
¾ inch	70 – 93
3/8 inch	42 – 80
No. 4	25 – 63
No. 10	16 – 48
No. 40	8 – 28
No. 200	2.0 – 10.0

2.05 SAND

A. Provide sand material consisting of durable particles ranging in size from fine to coarse in a substantially uniform combination. Unwashed bank-run sand and crushed bank-run gravel will be considered generally acceptable under this specification. Moisture content not to exceed 10%. Sand material to conform substantially to the following gradation table:

B. Sand Gradation

<u>Sieve Size</u>	<u>% Passing by Weight</u>
2 inch	100
No. 4	45 - 80
Finer Than No. 200	2 - 10

2.06 SOURCE QUALITY CONTROL

- A. To establish acceptability of material, perform tests for each soils class in accordance to the following standards:
 - 1. Soils Class A and C:
 - a. ASTM C88.
 - b. ASTM C131 (for coarse aggregates smaller than 1½ inches).
 - c. ASTM C136.
 - d. ASTM C535 (for coarse aggregates 1½ inches and larger).
 - e. ASTM C117 (use when aggregate contains materials finer than No. 200 sieve).
 - 2. Soils Class B:
 - a. ASTM C88.
 - b. ASTM C117.
 - c. ASTM C136.
 - 3. Source sample all soils and aggregates in accordance with ASTM D75.
 - 4. Perform one (1) acceptable test for each type of material at each source.

PART 3 - EXECUTION

3.01 APPLICATION

- A. Use the soil classification as specified or stated on Drawings.
- B. Place material in accordance with the Drawings and appropriate Specification Sections for the type of work performed.

END OF SECTION

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SECTION 32 11 23
AGGREGATE BASE COURSES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Materials testing.
 - 2. Foundation preparation.
 - 3. Crushed aggregate base course for roads, shoulders, and parking areas.
 - 4. Preparation of crushed aggregate base course for paving.

1.02 REFERENCES

- A. American Association of State Highway and Transportation Officials (AASHTO):
 - AASHTO T2 Sampling Stone, Slag, Gravel, Sand, and Stone Block for Use as Highway Materials
 - AASHTO T27 Sieve Analysis of Fine and Coarse Aggregates
 - AASHTO T37 Sieve Analysis of Mineral Filler
 - AASHTO T89 Determining the Liquid Limit of Soil
 - AASHTO T90 Determining the Plastic Limit and Plasticity Index of Soils
 - AASHTO T104 Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate

- B. American Society for Testing and Materials (ASTM):
 - ASTM D1557 Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Lb. (4.54 kg) Rammer and 18-In. (457 mm) Drop.
 - ASTM D6938 Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

1.03 ALLOWANCES

- A. If so stated in the specification "Allowances", installation testing will be paid as an allowance. All other testing will be incidental to the Work.

- B. If there is no reference in the specification section to “Allowances”, then testing costs will be incidental to other Work items.

1.04 SUBMITTALS

- A. Informational:

- 1. Submit two (2) copies of the results of quality control testing (include location where test was done):
 - a. Materials source testing.
 - (1) Aggregate supplied from a previously approved source provide source testing report and approval letter from Owner the material was supplied.
 - b. Crushed aggregate base material installation testing.
 - c. Additional density and gradation testing, if required.
- 2. Submit daily one copy of weight tickets showing the net weight for each truckload of crushed aggregate base material delivered and placed. Tickets will only be considered for payment if received on the same day the material is placed.
- 3. Field quality control testing results.

1.05 QUALITY ASSURANCE

- A. Obtain an independent testing laboratory approved by the Owner to provide quality control testing.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Aggregates

- 1. Store aggregates to prevent contamination by foreign matter or by aggregates of different sizes.

- B. Delivery of Aggregates

- 1. Vehicles used to transport aggregates shall be of a type to minimize loss of materials and excessive segregation of particles.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Aggregates

1. Provide aggregate material substantially free of deleterious materials that include: shale, chert, phyllite or other altered rock formed from clay materials, soft or porous rock fragments, clay lumps, coal, and other non-durable or organic particles.
2. Provide aggregates consisting of hard, durable particles of crushed stone and a filler of natural sand, stone sand or other finely divided mineral matter.
 - a. Remove oversize material by screening or by crushing to required sizes.
3. Liquid Limit and Plasticity Index:
 - a. Aggregate including any blended filler shall have a liquid limit of not more than 25 and a plasticity index of not more than 6.
4. Fracture Count:
 - a. At least 58 percent of particles retained on the No. 4 sieve shall have at least one fractured face.
5. Soundness:
 - a. When the fraction of aggregate retained on the No. 4 sieve is subjected to five cycles of the sodium sulfate soundness test, weighted loss shall not exceed 18 percent by weight.
6. Filler for Blending:
 - a. Additional mineral filler required to meet gradation requirements or for satisfactory binding of material shall be uniformly blended with base course material at the screening plant.
 - b. Mineral fillers shall be free from agglomerations or lumps and shall contain not more than 15 percent of material retained on a No. 4 sieve.

7. Moisture Content: Not to exceed 7 percent.

8. Aggregate Gradation Requirements

a. 3 inch dense-graded base material:

<u>Sieve Size</u>	<u>% By Weight Passing Crushed Stone</u>
3 inch	90-100
1½ inch	60-85
¾ inch	40-65
No. 4	15-40
No. 10	10-30
No. 40	5-20
No. 200	2.0-12.0

b. 1½ inch dense-graded base material:

<u>Sieve Size</u>	<u>% By Weight Passing Crushed Stone</u>
1 ¼ inch	95-100
¾ inch	70-93
3/8 inch	42-80
No. 4	25-63
No. 10	16-48
No. 40	8-28
No. 200	2.0-12.0

(1) Limited to a maximum of 8.0 percent for base placed between old and new pavement.

c. ¾ inch dense-graded base material:

<u>Sieve Size</u>	<u>% By Weight Passing Crushed Stone</u>
1 inch	100
¾ inch	95-100
3/8 inch	50-90
No. 4	35-70
No. 10	15-55
No. 40	10-35
No. 200	5.0-15.0

2.02 SOURCE QUALITY CONTROL

- A. Test aggregate material per the following requirements:
 - 1. Sampling: AASHTO T2.
 - 2. Sieve Analysis:
 - a. AASHTO T27 for aggregates including fracture count.
 - b. AASHTO T37 for mineral fillers.
 - 3. Liquid Test: AASHTO T89.
 - 4. Plasticity Index: AASHTO T90.
 - 5. Soundness: AASHTO T104 using sodium sulfate

PART 3 - EXECUTION

3.01 PREPARATION OF FOUNDATION

- A. Prepare the foundation for aggregate base course in accordance with requirements of applicable Specification Section(s).
- B. Do not place the aggregate base course on a foundation that is soft, spongy or covered by ice or snow.
- C. Do not place base material on a dry or dusty foundation when existing condition would cause rapid dissipation of moisture from base material and hinder or preclude its proper compaction.
 - 1. Apply water to such dry foundations and rework or recompact as necessary.
- D. Before placing aggregate base course material, identify areas of yielding subgrade and perform corrective work.
 - 1. After rough grading, on all or a portion of the subgrade, identify yielding areas for Engineer evaluation.
 - 2. The Engineer will evaluate identified areas of yielding subgrade to determine if corrective work or excavation below subgrade (EBS) is required.

3. Provide loaded trucks and run the grade to confirm yielding areas.
4. Perform EBS in yielding areas and backfill with 1 1/4 -inch dense-graded base material.
5. Verify that yielded areas of the subgrade have been corrected by providing loaded trucks and run the grade to confirm the correction.

3.02 AGGREGATE BASE COURSE INSTALLATION

A. Use gradations as follows:

1. 3-inch dense-graded base material may be used only in the lower portion of the base layer (minimum 6 inches thick) when the base layer is 10 inches or greater in total thickness.
2. 1 1/4-inch dense-graded base material shall be used under the pavement at a minimum thickness of 4 inches.
3. 3/4-inch dense-graded base material shall be used under the paved shoulder and where aggregate material is exposed in the shoulder and driveways.

B. Placing aggregate base course

1. Place aggregate material in a method that minimizes hauling on the subgrade or in-place base material. Do not use vehicles or operations that damage the subgrade or in-place base material.
2. Route hauling equipment uniformly over previously placed base material.
3. Construct crushed aggregate base course to the width, thickness, section and location shown on the Drawings.
4. Shape the base surface to within 0.04 feet of the elevations shown on the Drawings.
5. Do not exceed 6 inches of compaction thickness for 1 1/4-inch or 3/4-inch dense-graded base material. Do not exceed 9 inches of compaction thickness for 3-inch dense-graded base material.
 - a. Install and compact approximate equal thicknesses when multiple courses are required.

6. Deposit the material on the foundation or previously placed layer in such a manner as to minimize segregation and to facilitate spreading to a uniform layer of the required dimensions.
7. Provide adequate moisture in the aggregate during placing, shaping, and compacting to prevent segregation and achieve adequate compaction.

C. Compaction

1. Provide compaction after a layer of aggregate has been placed and spread to the required thickness, width, and section.
2. Compact the base until there is no appreciable displacement, either laterally or longitudinally, under the compaction equipment.
3. Compact each layer before placing the subsequent layer.
4. If the material is deficient in moisture content to attain the required density, add necessary water during compaction operations by means, which provides a uniform application to achieve proper compaction.
5. Use specialized pneumatic or vibratory compaction equipment or a combination of both types of machines. Do not use tamping rollers.
6. Compact each layer or course placed to at least 95 percent of the maximum dry density as determined by the Modified Proctor Test (ASTM D1557).
7. Rework or remove areas where proper compaction is not obtainable due to segregation of materials, excess fines or other deficiencies. Replace removed material with material that will yield the desired results.
8. Prior to and during compaction operations, shape and maintain the material to the proper dimensions.

D. Proof (Test) Rolling

1. Prior to paving operations, test the base course strength by proof rolling.
2. Proof roll finished base course by rolling with a fully loaded tandem axle dump truck.
3. Proof rolling includes running fully loaded trucks over the entire roadway (pavement plus shoulders or extent beyond back of curb) width.

4. Stabilize weak or yielding areas in the base course by removing the placed/existing base course material and replace with clean base aggregate.
 5. Provide a subsequent proof roll test for all repaired/stabilized areas within the base course.
 6. In the event that weather, or other conditions change the condition of the base course after initial proof roll test and/or stabilization has been performed, provide a proof roll test of the entire base course after such event.
 7. Take necessary precautions to protect existing structures from damage during proof roll test.
- E. Maintenance
1. Provide maintenance of the base course until surface paving is complete or until the base is otherwise accepted.
- F. Dust Control
1. Minimize the dispersion of dust from the base course by the application of water or other approved dust control materials.
- G. Preparation of Base for Paving
1. Prior to paving, perform all necessary scarifying, shaping, and compacting to provide the required cross-sectional contour, a profile free from abrupt changes in elevation, and a surface free from pits, holes, depressions, or projections above the normal surface.
 2. Remove any standing or ponded water, and ice or snow from the base before paving begins.

3.03 FIELD QUALITY CONTROL

- A. Installation Testing
1. Perform a minimum of one (1) moisture/density test in accordance with ASTM D6938 (Nuclear Method) per 10,000 sq. ft. per layer of base course placed.
 2. Perform a minimum of one (1) sieve analysis per day conforming with:

- a. AASHTO T27 for aggregates including fracture count.
 - b. AASHTO T37 mineral fillers.
- B. Provide additional Density and Gradation Testing when:
- 1. Aggregate density does not meet project requirements.
 - 2. There is a change in method of compaction.
 - 3. There is a change in source or quality of aggregate.

END OF SECTION

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**SECTION 32 92 00
TOPSOIL, TURF AND GRASSES**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Site Preparation
 - 2. Topsoiling
 - 3. Fertilizing
 - 4. Seeding
 - 5. Erosion Mat
 - 6. Mulching
 - 7. Maintenance and Monitoring

1.02 REFERENCES

- A. Association of Official Seed Analysis (AOSA)
AOSA Rules for Testing Seeds
- B. American Society for Testing and Materials
ASTM D5268 Standard Specification for Topsoil Used for Landscaping
Purposes
- C. Wisconsin Department of Agriculture, Trade and Consumer Protection (ATCP)
ATCP Chapter 20 Noxious Weed Seed Content and Labeling
ATCP Chapter 40 Fertilizer and Related Products
- D. Wisconsin Erosion Control Product Acceptability List (PAL)
- E. USDA Natural Resource Conservation Service (NRCS)
NRCS Specified Soil Types

1.03 ALLOWANCES

- A. If so stated in the specification "Allowances", installation testing will be paid as an allowance. All other testing will be incidental to the Work.
- B. If there is no reference in the specification section to "Allowances", then testing costs will be incidental to other Work items.

1.04 SUBMITTALS

- A. Action Submittals
 - 1. Imported Topsoil
 - a. Provide topsoil analysis performed in accordance with ASTM D5268 and demonstrating the topsoil meets Natural Resource Conservation Service (NRCS) specified soil types.
 - b. Submit results of tests for nutrient levels and provide recommendations for fertilizer type and application.
 - 2. Fertilizer
 - a. Furnish certification from supplier attesting to: Brand name, chemical analysis, and guarantee of analysis.
 - 3. Seed
 - a. Furnish certification of conformance with AOSA "Rules for Testing Seed" and attest to: Mix, age, weed content, purity, and germination.
- B. Informational Submittals
 - 1. Submit all tags from seed bags / containers.
 - 2. Submit two (2) full sets of manufacturer's literature and installation instructions for each erosion mat product prior to installation.

1.05 QUALITY ASSURANCE

- A. Test seed according to the methods and procedures used for sampling and analyzing seed for purity, germination, and noxious weed seed content specified in the current addition of the AOSA Rules for Testing Seed.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store any seed delivered before use in a way that protects it from damage by heat, moisture, rodents, or other causes. Discard and replace any seed that becomes damaged.

PART 2 - PRODUCTS

2.01 TOPSOIL

- A. Imported Topsoil
 - 1. Topsoil shall be Soil Class F-1 as required by these specifications. Furnish topsoil consisting of loam, sandy loam, silt loam, silty clay loam, or clay loam humus-bearing soils adapted to sustain plant life, and ensure this topsoil is in a pH range of 6.0 to 7.0.
- B. Salvaged Topsoil
 - 1. Topsoil salvaged from the project site may be used to restore lawn areas provided that the soil meets the requirements of paragraph A.1 above. If the volume of salvaged topsoil is not sufficient to restore all areas to the required depths, imported topsoil is required.
- C. Pulverize imported and salvaged topsoil completely breaking down all clods and lumps. The material shall be free of rocks, twigs and other foreign material. 100% of the material shall pass a one-inch sieve and at least 90% shall pass the No. 10 sieve (0.08 inch).

2.02 FERTILIZER

- A. Furnish fertilizers for seeding and sodding that are standard commercial packaged or bulk products in granular or liquid form conforming to ATCP Chapter 40.
- B. Each container of packaged fertilizer must be plainly marked with the analysis of the contents showing minimum percentages of total nitrogen, available phosphoric acid and soluble potash. Provide an invoice for each bulk material shipment indicating the minimum percentages of total nitrogen, available phosphoric acid and soluble potash in the contents.
- C. Furnish fertilizer meeting the following minimum requirements:
 - 1. Nitrogen, not less than 16%.

2. Phosphoric Acid, not less than 6%.
3. Potash, not less than 24%.
4. The total of nitrogen, phosphoric acid and potash shall equal at least 50%.
5. Fertilizer shall contain no phosphorus.

2.03 SEED

A. General Requirements

1. Conform to chapter ATCP 20 regarding noxious weed seed content and labeling.
2. Use seed within one year of the test date appearing on the label.

B. Lawn Type Turf

1. All lawn areas restored with topsoil, unless shown otherwise on Drawings, shall be seeded with grass seed meeting the following requirements:

Species	Purity Minimum %	Germination Minimum %	Mixture Proportions in Percent
Kentucky Bluegrass	98	85	35
Red Fescue	97	85	20
Hard Fescue	97	85	20
Improved Fine Perennial Ryegrass	96	85	25

2. Add a Temporary Seed Cover Crop of winter wheat or annual rye due to time of year.

2.04 EROSION MAT

- A. Furnish erosion mat materials as specified within other sections of these specifications, within the current Wisconsin Erosion Control Product Acceptability List (PAL), and as indicated on the Drawings.

2.05 MULCH

- A. Mulch shall consist of straw or hay which are free of noxious weeds and other objectionable foreign matter.
- B. Furnish mulch binder (tackifier) as specified within the current Wisconsin Erosion Control Product Acceptability List (PAL).

PART 3 - EXECUTION

3.01 SITE PREPARATION

- A. Grade subgrade to a uniform depth accommodating specified topsoil thicknesses in accordance with the following:
 - 1. Seeded Areas – Four (4) inches.

3.02 TOPSOILING

- A. After preparing and finishing the areas designated for topsoil to the required lines, grades, slopes and cross-sections, place and spread the topsoil to a uniform depth as follows:
 - 1. Seeded Areas – Four (4) inches settled.
- B. Break down all clods and lumps using the appropriate equipment to provide a uniformly textured soil.
- C. Remove rocks, twigs, foreign material and clods that cannot be broken down. Dress the entire surface to present a uniform appearance.
- D. Topsoil shall not be compacted.
- E. Just before seeding, work the area being seeded with discs, harrows, or other appropriate equipment to obtain a reasonably even and loose seedbed.

3.03 FERTILIZING

- A. Uniformly apply the fertilizer selected for the seeding areas and incorporate into the soil by light discing or harrowing. If applying granular fertilizer, ensure it is well pulverized and free from lumps.
- B. If incorporating fertilizer into topsoiled areas, the contractor may apply it just before, and in conjunction with, final discing or harrowing, or if hand manipulating the topsoil, apply it just before final raking and leveling.

- C. If sowing seeding areas by hydroseeding, then fertilize by placing the required quantity of fertilizer in the tank, mixing with the water and the seed, agitating constantly, and apply during the seeding operation. If applying fertilizer this way then discing and harrowing after placement is not required.
- D. If fertilizing areas to receive sod, spread the fertilizer uniformly over the soil before sodding at the rate specified, and then work the fertilizer into the soil while preparing as specified for preparing the earth bed.

3.04 APPLICATION RATES

- A. Permanent Seeding
 - 1. Three (3) pounds per 1,000 square feet for Temporary Cover Crop Seeding.
 - 2. Four (4) pounds per 1,000 square feet for Permanent Seeding.
- B. Fertilizer
 - 1. Seven (7) pounds per 1,000 square feet.

3.05 SEEDING

- A. Broadcast Seeding
 - 1. Utilize a machine or combination of machinery intended for seed sowing and which will produce the following:
 - a. Apply seed uniformly at the rate specified.
 - b. Cover seed with approximately $\frac{1}{4}$ inch of topsoil.
 - c. Roll lightly.
 - d. Apply seed at right angles to surface drainage.
 - 2. If broadcasting by hand, perform this work with satisfactory hand seeders and only when the air is calm enough to prevent seeds from blowing away.

B. Hydroseeding

1. The hydroseeding machine shall have a built-in agitation system and operating capacity as sufficient to agitate, suspend and homogeneously mix a slurry containing seed, fertilizer, mulch and tackifier sufficient to meet or exceed minimum application rates. All materials shall be compatible with the hydroseeding process.
2. During application, contain the hydroseeding mixture to within the required areas. Excessive overspray on sidewalks, roadways, private property, etc. shall be cleaned.

3.06 EROSION MAT

- A. Install erosion mat materials within ditches and on side slopes greater than 10% as specified within other sections of these specifications and within the current Wisconsin Erosion Control Product Acceptability List (PAL).
- B. Install erosion mat materials as recommended by the product manufacturer(s) installation guidelines.
- C. Erosion mat may also be placed within non-required areas to improve grass seed germination and growth at the Contractor's discretion and cost.

3.07 MULCHING

- A. Unless directed otherwise, place the mulch on the seed areas within two (2) days after completing the seeding. Place straw or hay uniformly over the area 1 to 1 ½ inches deep, using 2 to 3 tons of mulch per acre. Do not perform mulching during periods of excessively high winds that may prevent proper mulch coverage. Place the mulch loosely or open enough to allow some sunlight to penetrate and air to slowly circulate, but thick enough to shade the ground, conserve soil moisture, and prevent or reduce erosion. Maintain the mulched areas and repair all areas damaged by wind, erosion, traffic, or other causes.
- B. Secure mulch by using one of the following methods:
 1. Method "A":
 - a. Secure mulch with heavy twine or netting.
 - (1) Twine to be fastened with pegs or staples to form a grid of 6- to 10-foot spacing.

2. Method "B":
 - a. Treat straw or hay with a tackifier, blow from a machine, and uniformly deposit over seeded areas in one operation. Use a machine intended for the purpose of mulch application that blows or ejects by constant air stream a controlled quantity of mulch and applies a spray of tackifier to partially coat the straw or hay, sufficient to hold together and keep in place the deposited mulch material. Throughout the process, feed the mulch material into the blowing machine to produce a constant and uniform ejection from the discharge spout, and operate in a position to produce mulch of uniform depth and coverage.
3. Method "C":
 - a. Immediately after spreading mulch, anchor in the soil by using a mulch crimper consisting of a series of dull, flat discs with notched edges. Equip the crimper with a ballast compartment to allow adjusting the weight for depth control.
 - b. Impress the mulch into the soil 1 ½ to 2 ½ inches deep in one pass of the crimper. Mulch crimpers are not to operate on steep slopes that may cause damage to the mulch, seedbed, or soil.

3.08 RESTORATION TIMETABLE

- A. Weather permitting, seeding, and sodding may be performed at any time during the growing season when soil conditions are suitable.
- B. All lawn restoration work in areas constructed during winter months shall be completed by May 15th of that year. All lawn restoration work in areas constructed after May 15th shall be completed in accordance with Paragraph A above.

3.09 MAINTENANCE AND MONITORING

- A. Seeded Areas:
 1. Maintain all seeded areas performed under this contract, which includes the destroying of weeds within the seeded areas by cutting, or by other means, and preventing the weed plants from maturing to the bloom or flower stage. The term "weeds" as defined here shall constitute plant life other than those included within the seed mixture specified.

2. Maintain and monitor seeded areas upon initial seeding and throughout the Correction Period to ensure uniform and consistent growth of the specified seed, as determined by the Owner. Water seeded areas as required to establish proper growth. Fully established growth will be determined when average seed growth coverage is a consistent 85% of the seeded area with uniform density and color, is capable of resisting erosion, and growth is a minimum height of 3".
- B. The cost of providing maintenance and monitoring will be considered incidental to other Work items within this section.

END OF SECTION

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SECTION 33 05 27
CORRUGATED METAL UTILITY PIPE

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Circular corrugated steel pipe.
 - 2. Flared end sections.
- B. The products described are not installed under this Section.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - ASTM A760 Standard Specification for Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains.
- B. American Association of State Highway and Transportation Officials (AASHTO)
 - AASHTO M 36 Standard Specification for Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains.
 - AASHTO M 246 Polymer Pre-Coated Corrugated Metal Culvert Pipe and Pipe Arches
 - AASHTO M 274 Standard Specification for Steel Sheet, Aluminum-Coated (Type 2), for Corrugated Steel Pipe

1.03 SUBMITTALS

- A. Action Submittals
 - 1. Shop Drawings
 - a. Submit shop drawings for sectional plate pipe, sectional plate arches, or sectional plate pipe arches.
 - b. Include shop detail, erection, and other drawings showing dimensions, sizes of material, details, and other information necessary for the complete fabrication and erection of the metal work.
- B. Informational Submittals
 - 1. Certificates

- a. Submit manufacturer's certification that materials delivered comply with the requirements of this section and the referenced standard.
2. Manufacturers' Instructions
 - a. Submit recommendations for installation of pipe and fittings.

1.04 QUALITY ASSURANCE

A. Certifications

1. Provide manufacturer's certification that samples representing each lot have been tested and inspected in accordance with ASTM A760/AASHTO M36 and have been found to meet the requirements for material required per this Specification Section.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Acceptance Requirements

1. Package pipe and fittings to prevent damage during shipping.
2. Use lifts for loading or unloading to avoid shock.
3. Do not drop materials.
4. Do not drag pipe or strike with hard objects which could scratch coatings.
5. Inspect pipe and pipe fittings when delivered to the site and prior to installation.
6. Reject pipe for any of the following:
 - a. Uneven laps.
 - b. Variation from a straight centerline of more than ½ inch.
 - c. Ragged or diagonal sheared edges.
 - d. Loose bolts or rivets.
 - e. Fasteners which are unevenly lined.
 - f. Poorly formed seams.
 - g. Illegible brand marking.
 - h. Dents or bends in the metal.

- i. Elliptical shape on round pipe.
 - (1) The average inside diameter of the pipe shall not vary more than $\frac{1}{2}$ inch or 1 percent, whichever is greater.
 - (2) Measure on the inside crest of the corrugations.
 - (3) Clearly mark rejected pipe as "REJECTED" with OSHA yellow paint.
- B. Storage and Handling Requirements
 - 1. Provide safe storage for material.
 - 2. Store materials to keep free from dirt and foreign matter.
 - 3. Store fittings in a manner that will allow drainage and protect from freezing.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Pipe Material
 - 1. Mark each piece of pipe as follows:
 - a. Manufacturer's name or trademark.
 - b. Date of manufacture.
 - c. Pipe size.
 - 2. Helical corrugated steel pipe material manufactured and fabricated in accordance with ASTM A760/AASHTO M36 Aluminized Steel, or ASTM A763/AASHTO M 245 Polymer Pre-Coated Steel.
 - 3. Metallic Coating – AASHTO M 274 Aluminized Steel Type 2 or AASHTO M 246 Polymer Pre-Coated Steel.
 - 4. Circular pipe shall be Type I.
 - 5. Corrugation size $2\text{-}\frac{2}{3}$ " x $\frac{1}{2}$ " for pipe sizes 12" diameter through 84" diameter.
 - a. Material sheet thickness:
 - (1) 6" diameter - .052 inches

- (2) 8" diameter to 24" diameter - .064 inches
 - (3) 30" diameter to 36" diameter - .079 inches
 - (4) 42" diameter to 54" diameter - 0.109 inches
 - (5) 60" diameter to 72" diameter - 0.138 inches
 - (6) 78" diameter to 96" diameter - 0.168 inches
6. Corrugation size 5" x 1" for pipe sizes 48" diameter through 144" diameter.
- a. Material sheet thickness:
 - (1) 48" diameter to 60" diameter - 0.064 inches
 - (2) 66" diameter to 96" diameter - 0.079 inches
 - (3) 102" diameter to 120" diameter - 0.019 inches
 - (4) 126" diameter to 144" diameter - 0.138 inches
7. Flared end sections shall meet the same requirements as the connecting pipe.
- B. Gaskets
- 1. Band of expanded rubber in accordance with ASTM A760/AASHTO M36.
- C. Band Connectors
- 1. Corrugations to match the pipe sections in accordance with ASTM A760/AASHTO M36.
- D. Coating
- 1. Metallic Coating – AASHTO M 274 Aluminized Steel Type 2 or AASHTO M 246 Polymer Pre-Coated Steel

PART 3 - EXECUTION (NOT USED)

END OF SECTION

**SECTION 33 05 31
THERMOPLASTIC UTILITY PIPE**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Polyvinyl Chloride (PVC) Gravity Sewer Pipe
- B. The products described are not installed under this Section.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - ASTM D1784 Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
 - ASTM D1785 Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120
 - ASTM D2241 Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)
 - ASTM D2466 Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40
 - ASTM D2467 Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80
 - ASTM D2564 Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems
 - ASTM D2665 Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings
 - ASTM D2672 Standard Specification for Joints for IPS PVC Pipe Using Solvent Cement
 - ASTM D2855 Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets
 - ASTM D3034 Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
 - ASTM D3139 Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals
 - ASTM D3212 Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals

ASTM F477	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F679	Standard Specification for Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fitting
ASTM F1336	Standard Specification for Poly (Vinyl Chloride) (PVC) Gasketed Sewer Fittings
ASTM F1866	Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Schedule 40 Drainage and DWV Fabricated Fittings

B. American Water Works Association (AWWA)

AWWA C104	Cement-Mortar Lining for Ductile-Iron Pipe and Fittings
AWWA C110	Ductile-Iron and Gray-Iron Fittings
AWWA C111	Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
AWWA C153	Ductile-Iron Compact Fittings
AWWA C900	Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In. (100 mm Through 1,500 mm)

1.03 SUBMITTALS

A. Action Submittals

1. Product Data

- a. Provide product data sheets for all pipe and fittings.

B. Informational Submittals

1. Certificates

- a. Certification of production date of all materials.
- b. Manufacturer's certification that the materials delivered were manufactured, sampled, tested, and inspected in accordance with this specification and appropriate referenced standards.

2. Manufacturers' Instructions

- a. Manufacturer's recommendations for assembly and installation.

1.04 QUALITY ASSURANCE

A. Certifications

1. Provide manufacturer's certification that materials delivered comply with the requirements of this section and the referenced standard.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Acceptance Requirements

1. Pipe shall be available to Engineer for inspection.
2. Inspect the pipe shipment to identify shifted loads, broken packaging or rough treatment, which could be an indication of damage.
3. Upon delivery insure that each pipe is clearly marked with the following information:
 - a. Manufacturer's name, trademark or logo.
 - b. Nominal size.
 - c. PVC cell classification.
 - d. Pipe stiffness designation, dimension ratio or schedule size and pressure class.
 - e. ASTM or AWWA specification designation.
 - f. National Sanitation Foundation approval (pipe for potable water).
 - g. Production date.
4. Reject pipe not clearly marked with the above information.
5. Reject damaged pipe.
6. Reject pipe if any of the following is identified:
 - a. Pitted or cratered.
 - b. Flaking.
 - c. Straightness varies more than ½ inch in 10 feet.
 - d. Any defect which prevents assembly according to manufacturer's recommendations.
 - e. Not utilized within one year of date of production.

- B. Storage and Handling Requirements
1. Unload the pipe in a manner which will not put stress on the pipe or strike anything causing damage.
 2. Place and store the pipe package units on level ground stacked no more than 8 feet high. Do not store close to heat sources.
 3. Store gaskets away from excessive exposure to heat, direct sunlight, ozone, oil or grease.
 4. Store solvent cement in tightly sealed containers away from excessive heat.
 5. Handle pipe in a manner to prevent impact blows, abrasion damage, gouging or cutting.
 6. When handling pipe in cold weather, provide additional care to prevent damage due to impact. Impact strength is reduced in cold weather.

PART 2 - PRODUCTS

2.01 POLYVINYL CHLORIDE (PVC) GRAVITY SEWER PIPE MATERIALS

- A. Mainline Gravity Sewer Pipe
1. Pipe, fittings and repair couplings shall be manufactured and tested in accordance with the following standards:
 - a. Sizes 8 inch through 15 inch and depths up to 25 feet:
ASTM D3034, PSM SDR-35 PVC.
 - b. Sizes 8 inch through 15 inch and depths greater than 25 feet:
ASTM D3034, PSM SDR-26 PVC.
 - c. Sizes 18 inch through 48 inch and depths up to 25 feet:
ASTM F679, PS46 PVC, T-1 minimum cell classification.
 2. Elastomeric Gaskets: Conform to ASTM F477
 3. Elastomeric Joints: Conform to ASTM D3212
 4. Solvent Weld Joints: Not permitted.

5. Repair Couplings

- a. Repair couplings for PVC SDR-35 pipe to PVC SDR-35 pipe shall comply with ASTM 3034, PSM SDR-35 PVC and gasketed joints complying with ASTM F1336 with stops.
- b. Repair couplings for transition between ABS composite pipe and PVC shall be Fernco eccentric couplings with stainless steel shear rings, bands, nuts and housings.

B. Sewer Services and Drain Tile

1. Manufactured and tested in accordance with ASTM D2665.
2. Fittings to conform to ASTM F1866.
3. Pipe for sizes 4-inch and 6-inch: Schedule 40
4. Solvent Weld Joints: ASTM D2672
5. Solvent Cements: ASTM D2564
6. Make joints in accordance with ASTM D2855.
7. Drain Tile shall be perforated.

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 33 05 33.30
CORRUGATED HDPE DRAINAGE PIPE

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Corrugated, perforated HDPE drainage pipe material.
- B. Products Furnished or Supplied but not Installed under this Section.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - ASTM D3212 Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
- B. American Association of State Highway and Transportation Officials (AASHTO)
 - AASHTO M252 Standard Specification for Corrugated Polyethylene Drainage Pipe
 - AASHTO M294 Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter

1.03 SUBMITTALS

- A. Informational Submittals
 - 1. Certificates
 - a. Submit manufacturer's certification that materials delivered comply with the requirements of this section and the referenced standard.
 - 2. Manufacturers' Instructions
 - a. Submit recommendations for installation of pipe and fittings.

1.04 QUALITY ASSURANCE

A. Certifications

1. Provide manufacturer's certification that samples representing each lot have been tested and inspected in accordance with AASHTO M252 and AASHTO M294 and have been found to meet the requirements for material required per this Specification Section.

PART 2 - PRODUCTS

2.01 DRAIN TILE

- A. Provide drain tile pipe shall be in accordance to AASHTO M252, type CP, and AASHTO M294, type CP, with class 2 perforations.

B. Geotextile

1. Drain tile shall be wrapped with knitted, woven, or non-woven fibers of polyester, polypropylene, stabilized nylon, polyethylene, or polyvinylidene chloride geotextile fabric.
2. Provide knitted geotextile wraps that form a seamless sleeve and fit tightly over the pipe.

- C. Drain tile outlets shall be Mitered Drain Model Number 4MD3P-B or 4MD3P-G, manufactured by Mitered Drain, Inc., (Phone 707-620-0606, Fax 707-620-0607, www.miteredrain.com).

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 33 05 97.26
UNDERGROUND TRACE WIRE MARKING FOR UTILITIES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Trace Wire
 - 2. Trace Wire Connectors
 - 3. Trace Wire Terminal Boxes

1.02 SUBMITTALS

- A. Action Submittals
 - 1. Product Data
 - a. Provide product data for trace wire, connectors and terminal boxes.

PART 2 - PRODUCTS

2.01 TRACE WIRE

- A. Open Trench – Provide #12 AWG copper clad steel, high strength with minimum 450 lb. break load, with minimum 30 mil HDPE or high molecular weight polyethylene insulation thickness designed for direct bury.
- B. Directional Drilling/Boring – Provide #12 AWG copper clad steel, extreme strength with 1,150 lb. break load, with minimum 30 mil HDPE or high molecular weight polyethylene insulation thickness designed for direct bury.
- C. Pipe Bursting/Slip Lining – Provide 7x7 stranded copper clad steel, extreme strength with 4,700 lb. break load, with minimum 50 mil HDPE or high molecular weight polyethylene insulation thickness designed for direct bury.
- D. Insulation Color
 - 1. Non-metallic potable water main and water services – blue color.
 - 2. Non-metallic non-potable water main – purple color.

3. Non-metallic sanitary sewer and sanitary sewer services – green color.
4. Non-metallic storm sewer and storm sewer services – black color.

2.02 TRACE WIRE CONNECTORS

- A. Direct Bury
 1. Provide main line splice to service line connection specifically manufactured for use in underground trace wire installation, dielectric silicon filled to seal out moisture and corrosion, and installed in a manner to prevent any uninsulated wire exposure.
 2. Interconnect mainline trace wires at intersections with tees and crosses.
 - a. At tee intersections, join the three wires using a single 3-way lockable connector.
 - b. At cross intersections, join the four wires using a 4-way connector. Using two 3-way connectors with a short jumper wire between the connectors is an acceptable alternative.
- B. Directional Drilling and Pipe Bursting
 1. Do not splice wire for directional drilling and pipe bursting on the main line.
 2. Intersection splicing shall follow direct bury connector requirements.

2.03 TRACE WIRE TERMINATION/ACCESS

- A. Provide trace wire grade level/in-ground access box or above ground access post at trace wire termination points.
- B. Provide manually interruptible conductive/connective link between the terminal(s) for the trace wire connection and the terminal for the grounding anode wire connection.
- C. Connect grounding anode wire to bottom terminal on the access boxes/posts.
- D. Grade Level / In-Ground Access Boxes
 1. Provide grade level/in-ground access boxes identified with “sewer” or “water” as appropriate cast into the cap and be color-coded blue for water, green for sanitary sewer and black for storm sewer.

2. Provide access box with minimum of 2 ½ inches diameter and 12 inches of depth.
 3. Provide cast iron locking cap/cover on the access box.
 4. Acceptable Manufacturers:
 - a. Test & Valve Products, Inc. Tracer Wire Access Box.
 - b. Bingham & Taylor Cathodic Protection Test Boxes.
 - c. Copperhead Snakepit Test Stations.
- E. Above Ground Access Posts
1. Provide above ground access post covers boxes identified with “sewer” or “water” as appropriate and be color-coded blue for water, green for sanitary sewer and black for storm sewer.
 2. Provide post of polypropylene material extending 60 inches above ground.
 3. Acceptable Manufacturers:
 - a. Copperhead Cobra T3 Test Stations.
 - b. Rhino Marking & Protection Systems TriView Flex.

2.04 GROUNDING

- A. Ground trace wire at all dead ends/stubs.
- B. Provide a drive-in magnesium grounding anode rod with a minimum of 20 feet of #12 red HDPE insulated copper clad steel wire connected to anode (minimum 0.5 lbs.) specifically manufactured for this purpose and buried at the same elevation as the utility.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install trace wire on non-metallic pipe with trace wire access not more than 400-foot intervals.
- B. Perform trace wire installation in such a manner that allows proper access for connection of line tracing equipment, proper locating of wire without loss or deterioration of low frequency (512Hz) signal for distances in excess of 1,000

linear feet, and without distortion of signal caused by multiple wires being installed in close proximity to one another.

- C. Provide trace wire system as a continuous single wire without looping or coiling of wire.
- D. Immediately repair any damage occurring during installation of the trace wire in an approved waterproof method. Do not tape and/or spray coat.
- E. Terminate trace wire on all service laterals/stubs a trace wire access box directly above the utility, using color-coded access boxes, located at the edge of the road right of-way, but out of the roadway.
- F. All mainline dead-ends shall go to ground using an approved waterproof connection to a drive-in magnesium grounding anode rod, buried at the same depth as the trace wire.
 - 1. Bury the anode on the opposite side of the utility at the furthest most point.
 - 2. Connect the anode wire in the trace wire access box to the trace wire utilizing the connection point in the access box.
- G. Do not connect mainline trace wire to existing conductive pipes. Treat as a mainline dead-end, ground using an approved waterproof connection to a grounding anode, buried at the same depth as the trace wire.
- H. Connect all service lateral trace wires to the mainline with a single wire, (no looping) using a mainline to lateral lug connector, installed without cutting/splicing the mainline trace wire.
- I. In occurrences where existing trace wire is encountered on an existing utility that is being extended or tied into, connect the new and existing trace wire using approved splice connectors, properly ground at the splice location as specified and be completely waterproof to prohibit corrosion and loss of conductivity.
 - 1. Provide trace wire at the 3 o'clock position of the pipe, taping or tying at 10-foot intervals.
- J. Installation - Storm Sewer System
 - 1. If the storm sewer system includes service laterals for connection of private drains and tile lines, provide trace wire the same as a sanitary sewer application.

2. Lay mainline trace wire continuously, by-passing around the outside of manholes/structure on the North or East side.
3. Provide trace wire at the 3 o'clock position of the pipe, taping or tying at 10-foot intervals.
4. Terminate trace wire on all storm sewer laterals at an approved trace wire access box color coded black and located directly above the service lateral at the road right of way. Follow grounding specification and connections.

K. Prohibited Methods and Materials

1. Uninsulated trace wire
2. Twist-on wire connectors
3. Brass or copper ground rods
4. Wire connections utilizing taping or spray-on waterproofing
5. Looped wire or continuous wire installations, that has multiple wires laid side-by-side or in close proximity to one another
6. Brass fittings with trace wire connection lugs
7. Wire terminations within the roadway, i.e. in valve boxes, cleanouts, manholes, etc.
8. Connecting trace wire to existing conductive utilities. To prevent corrosion at existing grounding options on corps or curb stops or splices. Anode grounding will prevent the wire from corroding.

3.02 FIELD QUALITY CONTROL

A. Field Tests and Inspections

1. Locate all new trace wire installations using typical low frequency (512Hz) line tracing equipment, witnessed by the Contractor, Engineer and Owner.
2. Perform this verification upon completion of rough grading and again prior to Substantial Completion.
3. Continuity testing in lieu of actual line tracing is not acceptable.

B. Non-Conforming Work

1. Correct any areas where trace wire installations cannot be traced with line tracing equipment.

END OF SECTION

**SECTION 33 42 00
STORMWATER CONVEYANCE**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Storm Sewer Pipe Installation
 - 2. Apron Endwalls Installation
 - 3. Connect to Existing Storm Sewer
 - 4. Connect to Existing Storm Sewer Manhole
 - 5. Culvert Pipe Installation
 - 6. Drain Tile
- B. Products Installed but not Furnished or Supplied Under this Section.

1.02 REFERENCES

- A. American Concrete Pipe Association (ACPA)
Concrete Pipe and Box Culvert Installation Manual
- B. American Society for Testing and Materials (ASTM):
 - ASTM D2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity - Flow Applications
 - ASTM D3212 Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
 - ASTM F667 Standard Specification for 3 through 24 in. Corrugated Polyethylene Pipe and Fittings
- C. American Association of State Highway and Transportation Officials (AASHTO)
 - AASHTO M36 Standard Specification for Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains
 - AASHTO M170 Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
 - AASHTO M252 Standard Specification for Corrugated Polyethylene Drainage Pipe

AASHTO M294 Standard Specification for Corrugated Polyethylene Pipe, 300-
to 1500-mm (12- to 60-in.) Diameter

D. National Corrugated Steel Pipe Association (NCSPA)

Installation Manual for Corrugated Steel Pipe and Structural Plate

1.03 SUBMITTALS

A. Action Submittals

1. Product Data

a. Provide product data sheet(s).

B. Informational Submittals

1. Certificates

a. Certification of production date of all materials.

b. Manufacturer's certification that the materials were
manufactured, sampled, tested, and inspected in accordance with
this specification and appropriate referenced standards.

2. Manufacturers' recommendations for assembly.

PART 2 - PRODUCTS

2.01 STORM SEWER PIPING

A. Provide type of pipe shown on Drawings or stated in Bid Form.

B. Do not use more than one material brand and manufacturer.

C. Provide storm sewer pipe in accordance to the appropriate Specification Section.

2.02 CULVERT PIPE

A. Provide culvert pipe in accordance to the appropriate Specification Section.

2.03 HIGH DENSITY POLYETHYLENE PIPE (HDPE)

A. Provide in accordance to the appropriate Specification Section.

2.04 DRAIN TILE

A. Provide in accordance to the appropriate Specification Section.

2.05 MANHOLES, INLETS AND CATCH BASINS

- A. Provide manholes, inlets, and catch basins in accordance with the appropriate Specification Section.

2.06 PIPE EMBEDMENT MATERIAL

- A. Soil Class A-7, ¾" crushed rock in accordance with the appropriate Specification Section.

- B. Culvert Pipe:

Sieve Size	% Passing by Weight
1 1/4-inch	100
No. 4	25 - 100
No. 40	---
No. 100	0 - 30
No. 200	0 - 15

- C. Geotextile Fabric for Filtration and Separation

- 1. Fabric shall be non-woven polyester, polypropylene or polyethylene conforming to the following minimums:
- 2. Grab Tensile Strength: 180 lbs.
- 3. Puncture strength: 68 lbs.
- 4. Apparent Breaking Elongation: 30%
- 5. Apparent Opening Size (Sieve Size): 50
- 6. Permittivity

- D. Geotextile Fabric for Wrapping Drain Tile

- 1. Provide a geotextile of knitted, woven, or non-woven fibers of polyester, polypropylene, stabilized nylon, polyethylene, or polyvinylidene chloride. Do not use slit film woven fabrics.
- 2. The fabric shall conform to the following requirements:
 - a. Minimum Grab Tensile Strength: 35 lbs.

- b. Apparent Opening Size (Sieve Size): No. 30 - 200
 - c. Minimum Permittivity: 1.35 s^{-1}
 - 3. Fabrics
 - a. Provide knitted fabrics constructed from continuous yarn.
 - b. Non-woven fabrics may be needle-punched, heat-bonded, resin-bonded, or combinations of these three types.
 - c. Provide woven fabrics constructed from monofilament or multifilament yarns.
 - 4. Provide geotextile wraps of knitted construction that form a seamless sleeve and fit tightly over the pipe. If using geotextile wraps constructed from woven or non-woven fabric, then tightly wrap and securely fix to the pipe.
 - 5. Clearly mark the geotextile rolls to identify the type of fabric.
- E. Insulation Board
 - 1. Extruded polystyrene conforming to ASTM C578, Type IV.
 - 2. Each board shall be 2 inches thick x 4 feet wide x 8 feet long.
- F. Tracer Wire
 - 1. Provide in accordance to the appropriate Specification Section.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Clean pipe interior and joints prior to installation. Keep pipe clean during construction.
- B. Install watertight plug to prevent water from entering the existing sewer system.
- C. Provide bypass pumping of existing connecting sewer in accordance to the appropriate Specification Section.

3.02 STORMWATER CONVEYANCE INSTALLATION

A. Separation of Water Mains and Sewers

1. The following separations shall be minimum:
 - a. Parallel.
 - (1) 8 feet, measured center to center.
 - (2) Vertical (when pipelines cross or when horizontal clearance is impossible).
 - (3) Water Main Below a Sewer: 18 inches clear. (Both pipes shall be constructed of water main quality pipe and joints for ten feet either side of the crossing.)
 - b. Water Main Above a Sewer: 6 inches clear.
2. When crossing a sewer, center a full length of water main or sewer to position joints as far as possible from sewer.
3. Coordinate relocation of any utilities within the work schedule.

B. General

1. Begin pipe installation at the lowest point in the line proceeding upstream with the bell end of the pipe pointing upstream.
2. Utilize full-length pipe except at manholes or service branches.
3. Use a saw to cut ends of pipe flush with inside wall of manholes and structures.
4. Provide cap, plug, or bulkhead at exposed ends of pipe upon completion of construction or whenever pipe installation is not in progress.
5. Vertical and Horizontal Alignment:
 - a. Install storm sewer pipe to maintain vertical and horizontal alignment as shown on the Drawings.
 - b. Use laser equipment mounted in a manner to permit beam to shine through pipe.
 - c. Use a target to check each pipe installed.

- d. Check laser beam alignment and grade a minimum of every 100 feet.
 - e. Use a fan to control air temperature variations in pipe and reduce bending of laser beam.
6. Install PVC pipe in accordance with requirements of ASTM D 2321.
 7. Commence pipe installation only after dewatering the trench below the trench bottom and necessary sheathing is in place.
- C. Trenched Installation
1. Excavate trench and provide pipe bedding and backfill material in accordance to the appropriate Specification Section.
 2. Prepare trench bottom to design line and grade so that only minor movement of the pipe is necessary after installation.
 3. Lay pipe to design line and grade with set field grades to invert of pipe.
 - a. Do not allow horizontal and vertical alignment to vary from design line and grade at any structure by more than 1% of the inside diameter of the pipe or 1/4 inch, whichever is larger.
 - b. Do not allow the horizontal alignment of the pipe to vary from design line at any point along the pipe by more than 1% of the inside diameter of the pipe.
 4. Provide uniform bearing for full pipe barrel length. Excavate bell holes as necessary for uniform support of pipe barrel on bedding material.
 5. Do not lay pipe in water or on saturated soil or bedding, or allow water to rise in trench around pipe prior to placing backfill material.
 6. Do not disturb installed pipe and bedding when using movable trench boxes and shields. Block or anchor pipe as necessary to prevent joint displacement.
 7. Install wye or tee service fitting at each location shown on the Drawings.
 8. Assemble pipe joints in accordance with manufacturer's recommendations.
 9. Push "home" the spigot end of the pipe joint in the socket before proceeding to install the next pipe.

10. When connecting to an existing sewer not terminating in a manhole, uncover the end of the existing sewer prior to laying sewer to allow horizontal and vertical adjustments.
 11. Install pipe such that pipe joints are located far enough from the manhole outside wall to permit future pipe repair without damaging the manhole and the joints do not fall within manhole walls.
 12. Provide pipe embedment as shown on the Drawings.
- D. Corrugated Metal Pipe
1. Install in accordance to National Corrugated Steel Pipe Association “Installation Manual for Corrugated Steel Pipe and Structural Plate”.
 2. Install corrugated metal pipe apron endwall at all culvert inlet and outlet locations with two pipe connections per joint.
- E. Drain Tile
1. Wrapping Pipe
 - a. Wrap the geotextile securely around the pipe underdrain along its entire length such that no water enters the underdrain without first passing through the fabric.
 - b. Do not expose the fabric to the direct rays of the sun for more than 48 hours before covering.
 - c. Cover torn or punctured fabric with suitable geotextile extending at least 12 inches in all directions from the edge of the damaged fabric.
 - d. Overlap all joints or splices in the fabric a minimum of 18 inches.
 2. Laying Pipe
 - a. Lay pipe in the trench starting at the outlet end and proceed toward the upper end, true to line and grade.
 - b. Securely connect sections of Drain Tile with fittings conforming to manufacturer’s recommendations.
 - c. Secure Drain Tile as necessary to prevent displacement during laying and backfilling.

- d. Lay perforated drainage pipe with the perforations on the underside of the pipe.
 - e. Close the dead ends of pipe securely with concrete plugs, or watertight caps, or plugs fabricated from the same material used in the pipe.
 - f. Protect discharge ends of pipes with securely fastened gratings or screens.
- 3. Drain tile discharging into storm structures shall be extended into the structure by approximately 6". Mortar space between pipe and existing structure so area is watertight and uniform with inside and outside of structure.
 - 4. Provide drain tile outlets at each point of discharge other than storm structures.

3.03 TRACER WIRE

- A. Provide for all non-metallic sewer mains and for all non-metallic service laterals within public right-of-way.
- B. Provide in accordance to appropriate Specification Section.
- C. Provide tracer wire continuity testing in accordance to appropriate Specification Section.

3.04 CONNECT TO EXISTING STORM PIPE

- A. Excavate to verify location, direction, and depth of existing pipe stubs. Notify Engineer immediately if actual location, direction, and/or depth conflict with the Drawings.
- B. Remove any plugs or partial sections and commence pipe installation at nearest existing bell.

3.05 CONNECT TO EXISTING STORM STRUCTURE

- A. Excavate to verify location and depth of existing structure. Notify Engineer immediately if location and/or depth conflict with the Drawings.
- B. Create opening in existing structure and commence pipe installation.
- C. Grout space between pipe and existing structure so area is watertight and uniform with inside and outside of structure.

3.06 CLEANING

- A. Clean existing culverts by jetting method where shown in the Drawings.

END OF SECTION

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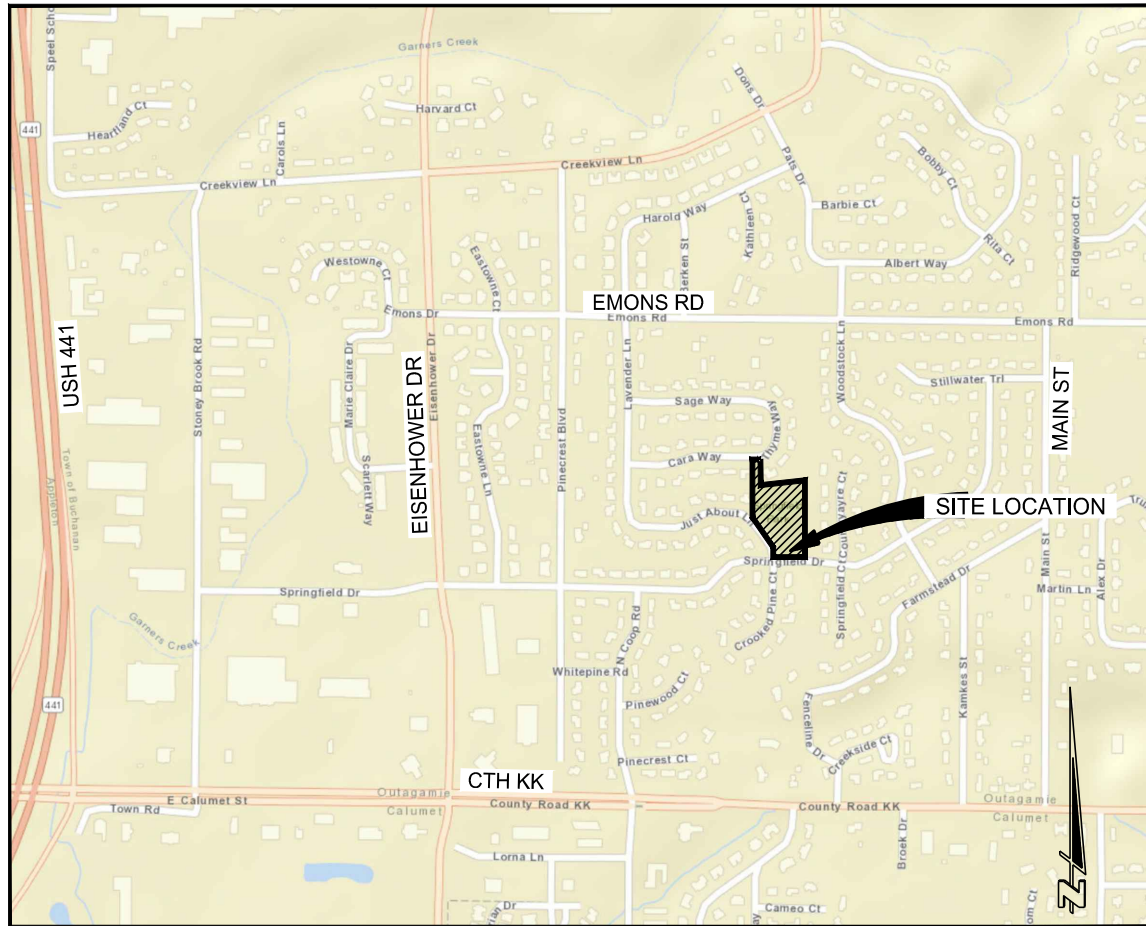
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CONSTRUCTION DRAWINGS FOR SPRINGFIELD PARK IMPROVEMENTS - PHASE 1

CONTRACT C-23
TOWN OF BUCHANAN
OUTAGAMIE COUNTY, WI
AUGUST, 2023

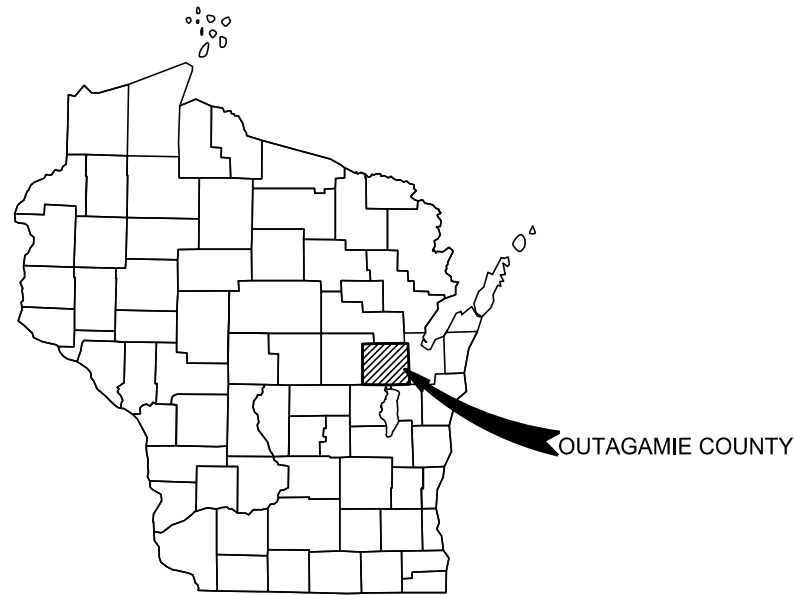


SITE LOCATION MAP

Prepared By



PROJECT I.D. 04916-0130

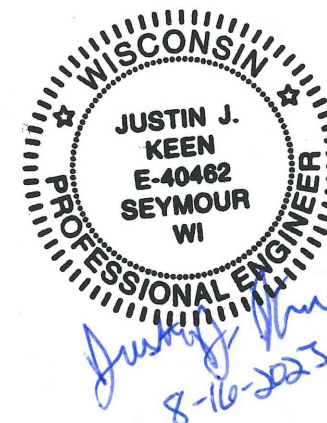


COUNTY LOCATION MAP

ATTENTION:
DOWNLOADED PLANS ARE NOT SCALABLE. NEITHER THE OWNER NOR THE ENGINEER SHALL BE HELD RESPONSIBLE FOR THE SCALE OR PRINT QUALITY OF DOWNLOADED PLANS. ONLY PRINTED PLANS FROM CEDAR CORPORATION SHALL BE CONSIDERED TO BE SCALEABLE PLANS.

INDEX TO DRAWINGS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STANDARD SYMBOLS ABBREVIATIONS & STAMPS
3	SPRINGFIELD PARK REMOVAL PLAN
4	SPRINGFIELD PARK SITE PLAN
5 - 6	STANDARD DETAILS



STAMPS

MAPPING & TOPOGRAPHY SYMBOLOLOGY

DESCRIPTION	SYMBOL	EXISTING	PROPOSED
SANITARY SEWER (PLAN) - LENGTH-DIA. MATERIAL @ GRADE	(SIZE & MAT'L) SAN		LENGTH - SIZE MATL SAN
STORM SEWER (PLAN) - LENGTH-DIA. MATERIAL @ GRADE	(SIZE & MAT'L.) STM		LENGTH - SIZE MATL STM
WATER MAIN (PLAN)- LENGTH-DIA. MATERIAL-(FITTING-FITTING)	(SIZE & MAT'L.) WTR		LENGTH - SIZE MATL WTR
SANITARY SEWER (PROFILE) - LENGTH-DIA. MATERIAL @ GRADE	(SIZE & MAT'L)		XXX'- XX" PVC SAN @ 0.00%
SANITARY FORCEMAIN (PROFILE) - DIA. MATERIAL	(SIZE & MAT'L)		XXX'- XX" FORCEMAIN @ 0.00%
STORM SEWER (PROFILE) - LENGTH-DIA. MATERIAL @ GRADE	(SIZE & MAT'L.)		XXX'- XX" RCP STM @ 0.00%
WATER MAIN (PROFILE)- DIA. MATERIAL	(SIZE & MAT'L)		X" PVC WM.
GAS MAIN			
ELECTRIC - BURIED			
ELECTRIC - OVERHEAD			
TELEPHONE - BURIED			
TELEPHONE - BURIED (FIBER OPTIC)			
TELEPHONE - OVERHEAD			
CABLE TELEVISION - BURIED			
CABLE TELEVISION - OVERHEAD			
CENTERLINE			
RIGHT-OF-WAY LINE			
PROPERTY LINE			
PAVEMENT (STREET, DRIVE, SIDEWALK, ETC.)			
GRAVEL			
CURB & GUTTER			
RAILROAD			
GUARDRAIL			
FENCE - AS LABELED			

GENERAL NOTES:

1. THESE DRAWINGS ARE NEITHER A LEGALLY RECORDED MAP, NOR A SURVEY, AND IS NOT INTENDED TO BE USED AS ONE.
2. ALL PROPERTY LINES SHOWN ARE ESTABLISHED FROM COUNTY GIS FILES. PROPERTY LINES MAY NOT REFLECT ACTUAL LOT LINE LOCATIONS AND ARE FOR INFORMATIONAL PURPOSES ONLY.
3. UTILITY LOCATIONS SHOWN ON THE PLANS WERE PROVIDED BY THE UTILITY OWNER. FIELD LOCATIONS MAY VARY AND ADDITIONAL UTILITIES MAY EXIST. CONTRACTOR SHALL CONTACT DIGGERS HOTLINE A MINIMUM OF 3 WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION.
4. ALL LENGTHS OF PROPOSED UTILITIES SHOWN ON THE PLANS ARE PER DESIGN, ACTUAL LENGTHS MAY VARY DURING CONSTRUCTION.

MAPPING & TOPOGRAPHY SYMBOLOLOGY

DESCRIPTION	SYMBOL	EXISTING	PROPOSED
BENCHMARK			
CATCH BASIN/INLET			
CONTROL POINT			
CULVERT		(DIA. & TYPE)	(LENGTH-DIA. & TYPE)
CURB STOP G=GAS W=WATER			
ELECTRIC PEDESTAL			
FIRE HYDRANT			
IRON PIPE = IP IRON ROD = IR			
LIGHT - ORNAMENTAL			
LIGHT - STREET			
MAILBOX			
MANHOLE ELECTRIC			
MANHOLE GAS			
MANHOLE MISCELLANEOUS			
MANHOLE SANITARY			
MANHOLE SIGNAL			
MANHOLE STORM			
MANHOLE STORM INLET CATCH BASIN			
MANHOLE WATER			
MANHOLE TELEPHONE			
METER - GAS			
METER - WATER			
PEDESTAL CABLE TV			
PEDESTAL TELEPHONE			
SIGN			
BUSH CONIFER			
BUSH DECIDUOUS			
TREE DECIDUOUS/INCH DIA			
TREE CONIFEROUS/INCH DIA			
TREE LINE			
VALVE: W=WATER, G=GAS			
UTILITY POLE			
SILT FENCE			
MAJOR CONTOURS			
MINOR CONTOURS			
SPOT ELEVATIONS			
INLET PROTECTION			

LIST OF STANDARD ABBREVIATIONS

ASPH	ASPHALT	NTS	NOT TO SCALE
B/B	BACK TO BACK	PC	POINT OF CURVATURE
BOC	BACK OF CURB	PCC	POINT OF COMPOUND CURVE
BLDG	BUILDING	PED	PEDESTAL
BM	BENCHMARK	PVMT	PAVEMENT
BSMT	BASEMENT	PI	POINT OF INTERSECTION
C	CUT	PL	PROPERTY LINE
C&G	CURB AND GUTTER	PP	POWER POLE
C/C	CENTER TO CENTER	PROP	PROPOSED
CABC	CRUSHED AGGREGATE BASE COURSE	PT	POINT OF TANGENCY
CB	CATCH BASIN	PVC	POLYVINYL CHLORIDE
CI	CAST IRON PIPE	PVI	POINT OF VERTICAL INTERSECTION
CL	CENTERLINE	PVT	POINT OF VERTICAL TANGENCY
CMP	CORRUGATED METAL PIPE	R	RANGE OR RADIUS
CO	CLEAN OUT	RCP	REINFORCED CONCRETE PIPE
CONC	CONCRETE	REBAR	REINFORCEMENT BAR
CP	CONTROL POINT	REQD	REQUIRED
CTH	COUNTY TRUNK HIGHWAY	RL	REFERENCE LINE
CTV	CABLE TV	ROW	RIGHT-OF-WAY
CS	CURB STOP	SAN	SANITARY
DIA	DIAMETER	WALK	SIDEWALK
DI	DUCTILE IRON PIPE	SF	SILT FENCE
EA	EACH	SL	SANITARY LATERAL
ELEC	ELECTRIC (E WHEN USED IN LINE STYLE)	SHLDR	SHOULDER
EP	EDGE OF PAVEMENT	STA	STATION
EXIST	EXISTING	STH	STATE TRUNK HIGHWAY
FH	FIRE HYDRANT	STM	STORM OR STORM SEWER
FL	FLOW LINE	TEL	TELEPHONE
FM	FORCE MAIN	TEMP	TEMPORARY
FO	FIBER OPTIC	TOC	TOP OF CURB
G	GAS	TYP	TYPICAL
GV	GAS VALVE	VC	VERTICAL CURVE
GW	GUY WIRE	WM	WATER MAIN
INV	INVERT	WS	WATER SERVICE
IP	IRON PIPE OR PIN	WV	WATER VALVE
L	LENGTH (OF CURVE)		
LC	LONG CHORD OF CURVE		
LP	LIGHT POLE		
MB	MAILBOX		
MG	METER-GAS		
MH	MANHOLE		

BENCHMARKS

1	HYDRANT BURY BOLT AT SW CORNER OF SPRINGFIELD DR & JUST ABOUT LN	758.30
2	SAN MH 635 AT INTERSECTION OF SPRINGFIELD DR & JUST ABOUT LN	756.62
3	SAN MH 707 ON JUST ABOUT LN, 40' NORTH OF JUST ABOUT LN	756.06

NOTE: ALL BENCHMARK LOCATIONS ARE SHOWN ON PLAN

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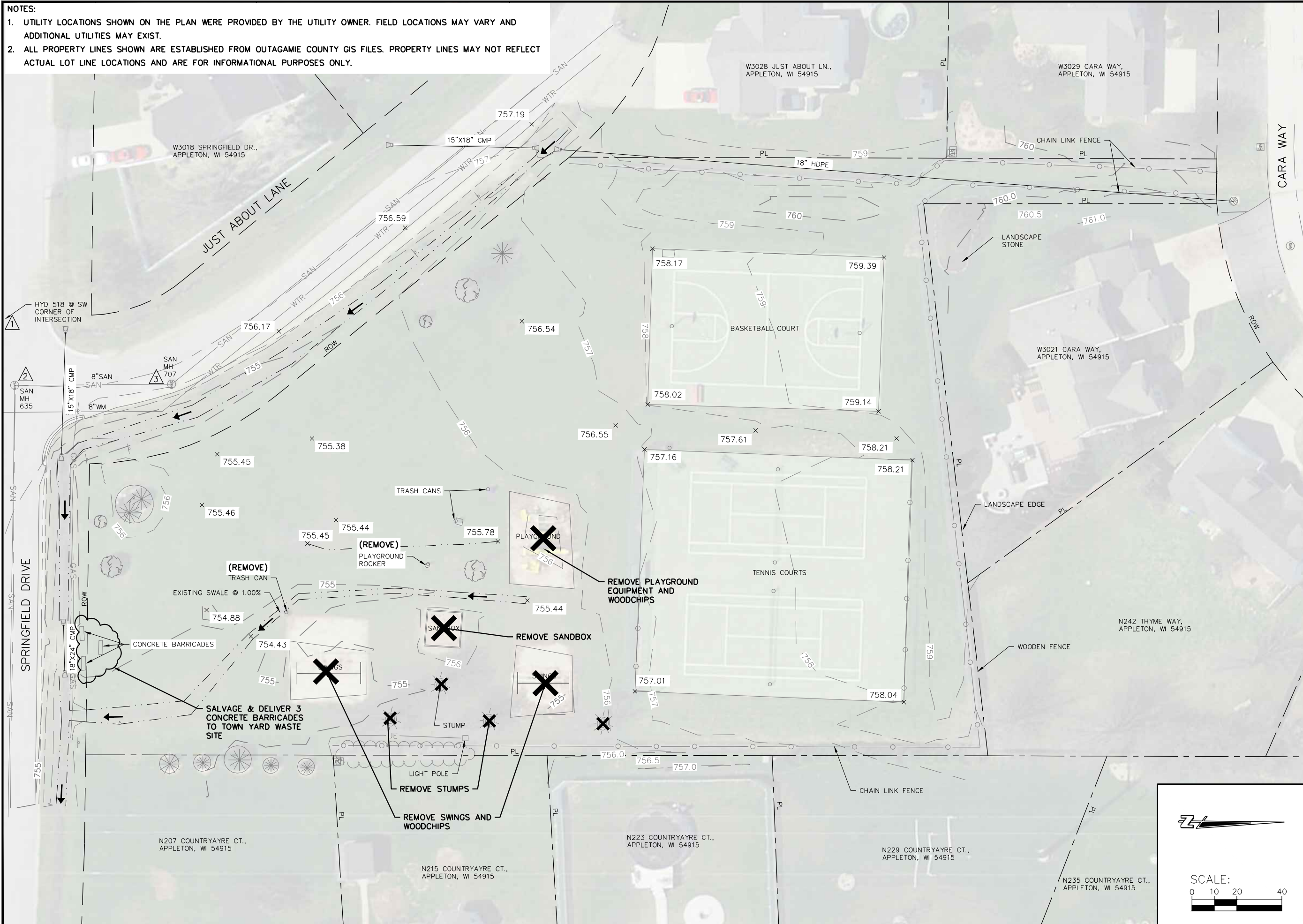
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WEL1497 Washington Ave.
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1695 Bellevue Street
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FAX 920-491-9020 FAX 715-235-2727
FAX 608-249-5824

TOWN OF BUCHANAN
SPRINGFIELD PARK IMPROVEMENTS - PHASE 1
CONTRACT C-23
STANDARD SYMBOLS & ABBREVIATIONS

NOTES:

1. UTILITY LOCATIONS SHOWN ON THE PLAN WERE PROVIDED BY THE UTILITY OWNER. FIELD LOCATIONS MAY VARY AND ADDITIONAL UTILITIES MAY EXIST.
2. ALL PROPERTY LINES SHOWN ARE ESTABLISHED FROM OUTAGAMIE COUNTY GIS FILES. PROPERTY LINES MAY NOT REFLECT ACTUAL LOT LINE LOCATIONS AND ARE FOR INFORMATIONAL PURPOSES ONLY.



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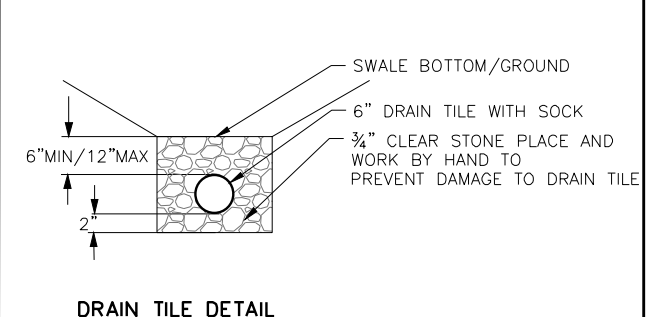
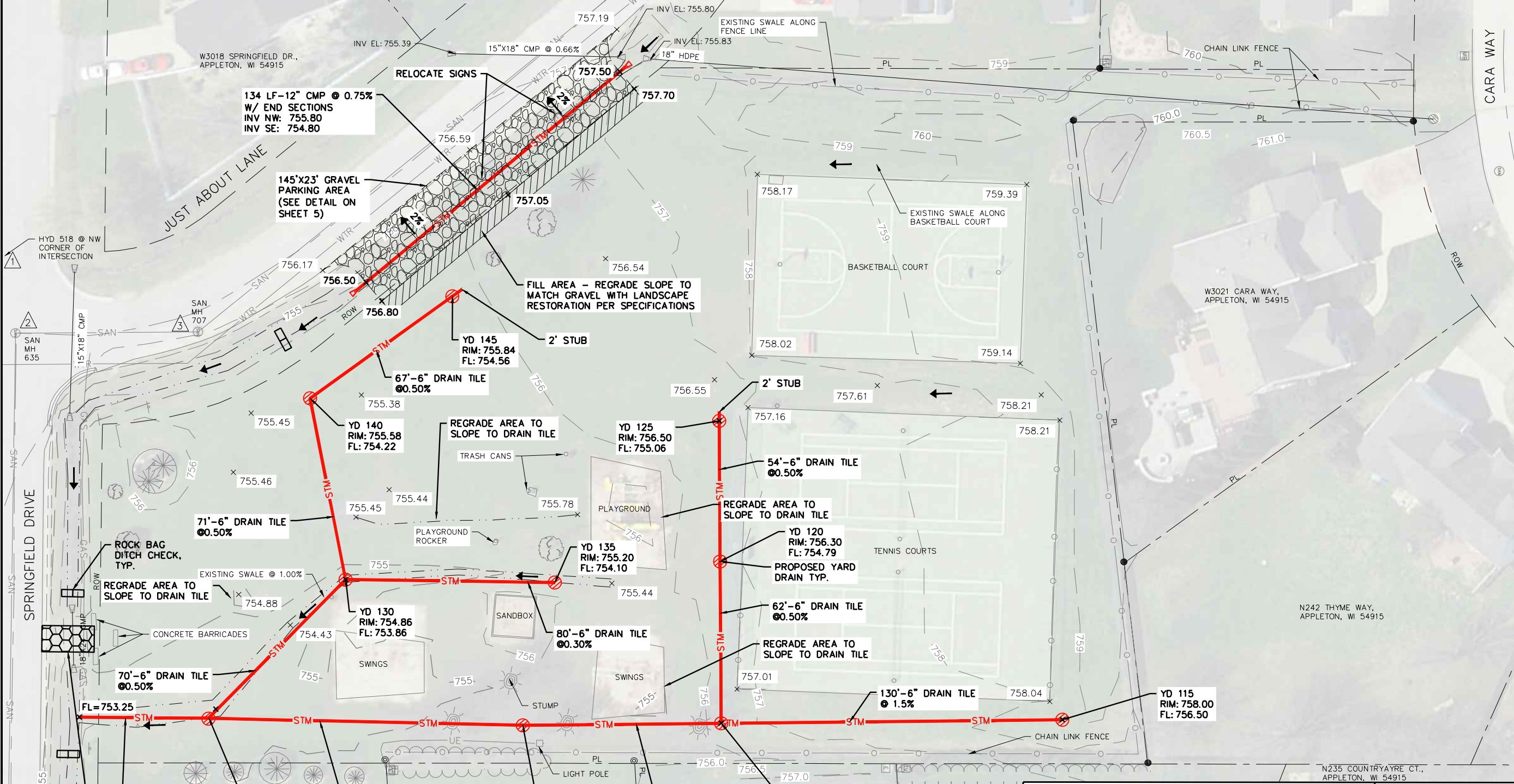
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Menomonee, WI 54751
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TOWN OF BUCHANAN
SPRINGFIELD PARK IMPROVEMENTS - PHASE 1
CONTRACT C-23
SPRINGFIELD PARK - REMOVAL PLAN



NOTES:

1. UTILITY LOCATIONS SHOWN ON THE PLAN WERE PROVIDED BY THE UTILITY OWNER. FIELD LOCATIONS MAY VARY AND ADDITIONAL UTILITIES MAY EXIST.
2. ALL PROPERTY LINES SHOWN ARE ESTABLISHED FROM OUTAGAMIE COUNTY GIS FILES. PROPERTY LINES MAY NOT REFLECT ACTUAL LOT LINE LOCATIONS AND ARE FOR INFORMATIONAL PURPOSES ONLY.
3. ALL DISTURBED AREAS AND ACCESS ROUTES SHALL BE RESTORED WITH TOPSOIL, SEED, FERTILIZER AND EROSION MAT PER SPECIFICATIONS.



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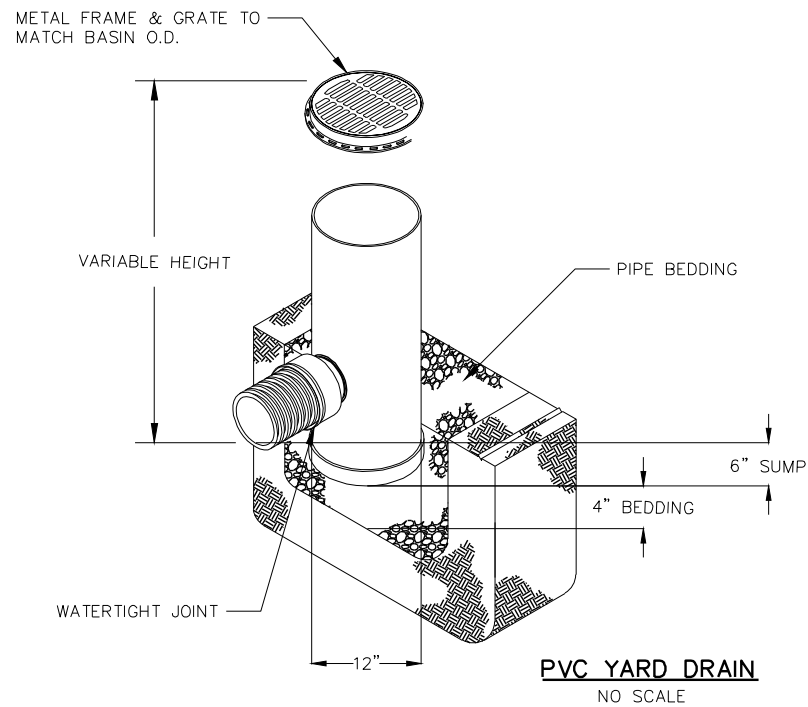
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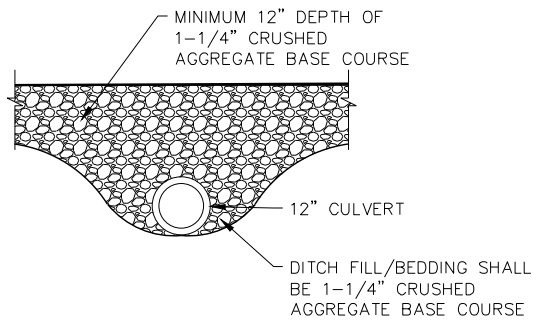
TOWN OF BUCHANAN
 SPRINGFIELD PARK IMPROVEMENTS – PHASE 1
 CONTRACT C-23
 SPRINGFIELD PARK – SITE PLAN

SHEET NO.
 4 OF 6

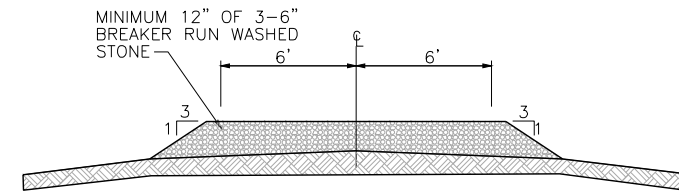
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PVC YARD DRAIN
NO SCALE



CRUSHED AGGREGATE BASE
PARKING AREA
NO SCALE



- NOTES:
1. TRACKING PAD TO BE A MINIMUM LENGTH OF 50'.
 2. REMOVE & REPLACE AGGREGATE WHEN VOIDS BECOME FILLED W/ SEDIMENT OR IF SURFACE OPENINGS BECOME PLUGGED SO THAT TRACKING AREA DOES NOT FUNCTION.
 3. REMOVE TRACKING PAD AND RESTORE AREA UPON COMPLETION OF THE PROJECT.

TYPICAL TRACKING PAD

NOTES:

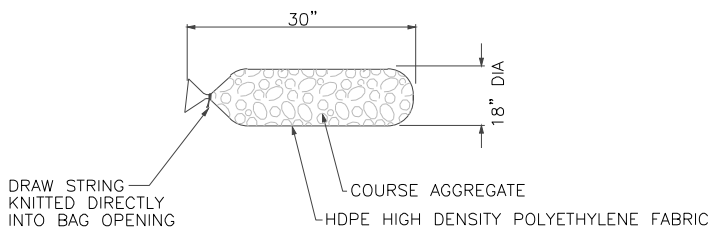
18" X 30" ROCK FILLED FILTER BAG SHALL BE COMPRISED OF THE FOLLOWING:
 -HDPE HIGH DENSITY POLYETHYLENE
 -HDPE HIGH DENSITY POLYETHYLENE DRAW STRING KNITTED DIRECTLY INTO BAG OPENING.
 -ROLLED SEAM USING A MINIMUM OF 480 DENIER POLYESTER SEWING YARN FOR STRENGTH AND DURABILITY.
 -6 BAGS PER LOCATION, OR AS APPROVED BY ENGINEER.

USE WELL GRADED COURSE AGGREGATE CONFORMING TO THE FOLLOWING GRADATION REQUIREMENTS

SIEVE SIZE	SIZE NO. AASHTO No. 67
2 INCH (50 mm)	-
1 1/2 INCH (37.5mm)	-
1 INCH (25.0 mm)	100
3/4 INCH (19.0mm)	90-100
3/8 INCH (9.5mm)	20-55
No. 4 (4.75mm)	0-10
No. 8 (2.36mm)	0-5

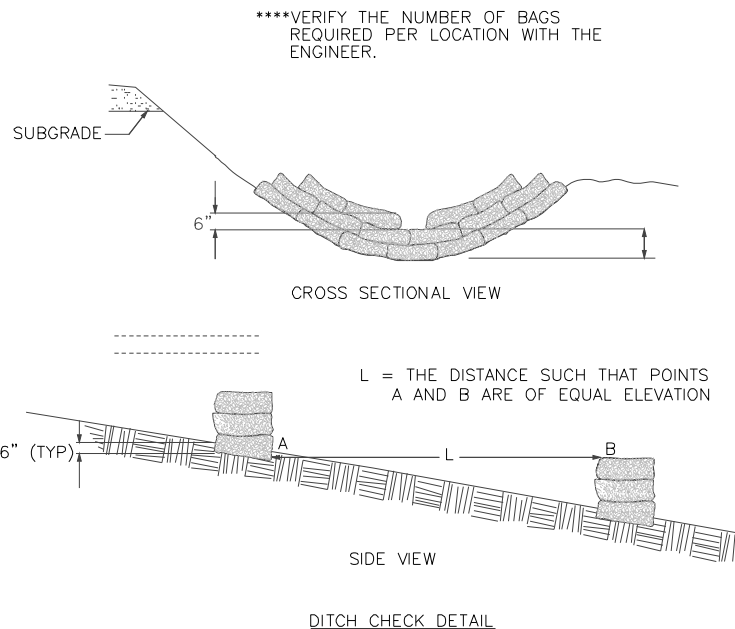
(1) SIZE No. ACCORDING TO AASHTO M 43

COURSE AGGREGATE INFORMATION



FILTER BAG DETAIL
(PRIOR TO INSTALLATION)

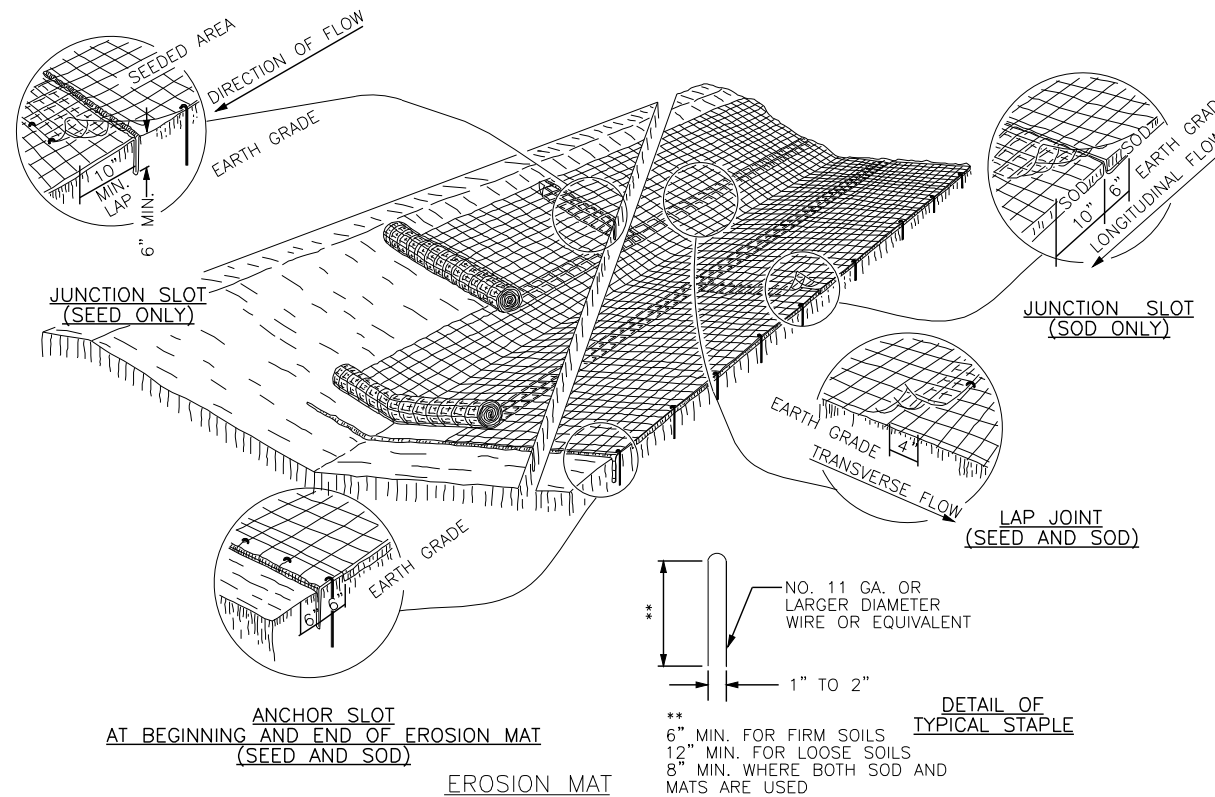
ROCK FILLED FILTER BAG



****VERIFY THE NUMBER OF BAGS REQUIRED PER LOCATION WITH THE ENGINEER.

L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION

DITCH CHECK DETAIL



NOTES:

VARIATIONS IN THE DIMENSIONS OR MATERIALS SHOWN HEREON WILL BE PERMITTED ONLY IF THEY PROVIDE EQUIVALENT PROTECTION AND MATERIAL STRENGTH AND IF PRIOR APPROVAL OF THE ENGINEER IS OBTAINED.

DO NOT PLACE LAP JOINTS AT THE BOTTOM OF V-SHAPED DITCHES.

JUNCTION SLOTS ON ADJACENT STRIPS OF MATTING WILL BE STAGGERED A MINIMUM OF 4 FEET APART

IMPRESS ALL EDGES OF THE EROSION MAT INTO THE SOIL.

EROSION MAT OVER SEEDING

JUNCTION OR ANCHOR SLOTS WILL BE AT MINIMUM INTERVALS OF 100 FEET ON GRADES UP TO AND INCLUDING 3 PERCENT, AND 50 FEET ON GRADES EXCEEDING 3 PERCENT.

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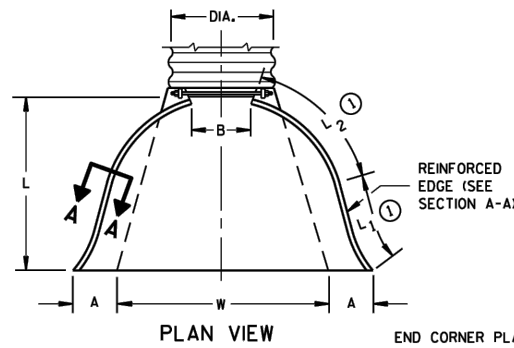
SDD 8f1 Apron Endwalls for Culvert Pipe

PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1/2")	L1	L2	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 3/4	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	9	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES

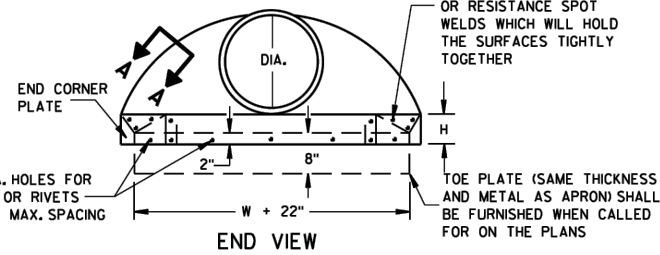
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE
	T	A	B	C	D	E	G	
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1
30	3 1/2	12	54	19 1/4	73 1/2	60	3 1/2	3 to 1
36	4	15	63	34 3/4	97 1/4	72	4	3 to 1
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 1/2	27	65	33 1/4 - 35	98 1/4 - 100	90	5 1/2	2 3/4 to 1
60	6	30 - 35	60	39	99	96	5	2 to 1
66	6 1/2	24 - 30	72 - 78	21 - 27	99	102	5 1/2	2 to 1
72	7	24 - 36	78	21	99	108	6	2 to 1
78	7 1/2	24 - 36	78	21	99	114	6 1/2	2 to 1
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1

* MINIMUM
** MAXIMUM

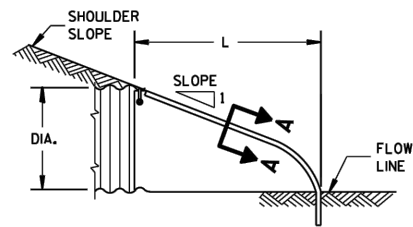


PLAN VIEW

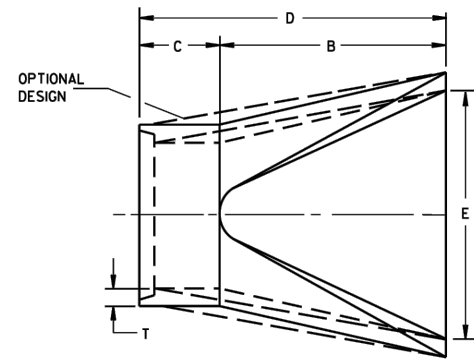
REINFORCED EDGE (SEE SECTION A-A)
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



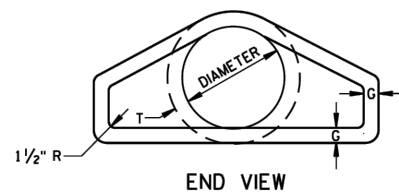
END VIEW



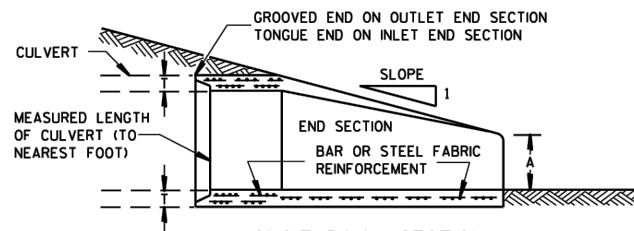
SIDE ELEVATION METAL ENDWALLS



PLAN

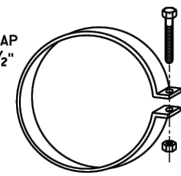


END VIEW



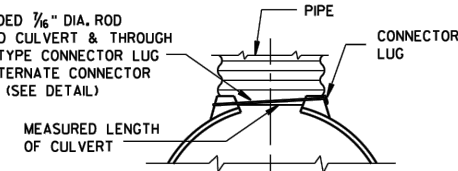
LONGITUDINAL SECTION CONCRETE ENDWALLS

1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



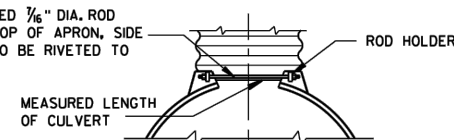
ALTERNATE FOR TYPE 1 CONNECTION END SECTION CONNECTOR STRAP

THREADED 1/8" DIA. ROD AROUND CULVERT & THROUGH TANK TYPE CONNECTOR LUG OR ALTERNATE CONNECTOR STRAP (SEE DETAIL)



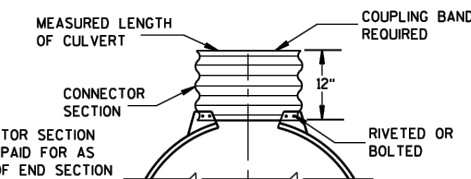
TYPE 1 FOR 12" THRU 24" CORR. PIPE

THREADED 1/8" DIA. ROD OVER TOP OF APRON, SIDE LUGS TO BE RIVETED TO APRON



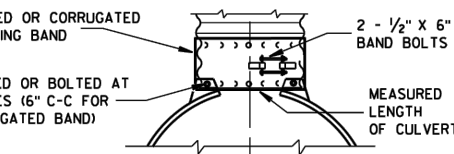
TYPE 2 FOR 30" THRU 96" CORR. PIPE

MEASURED LENGTH OF CULVERT
CONNECTOR SECTION TO BE PAID FOR AS PART OF END SECTION



TYPE 3 FOR 42" THRU 96" CORR. PIPE

DIMPLED OR CORRUGATED COUPLING BAND
RIVETED OR BOLTED AT DIMPLES (6" C-C FOR CORRUGATED BAND)



TYPE 5 ALTERNATE FOR: ALL SIZES CORRUGATED CIRCULAR PIPE

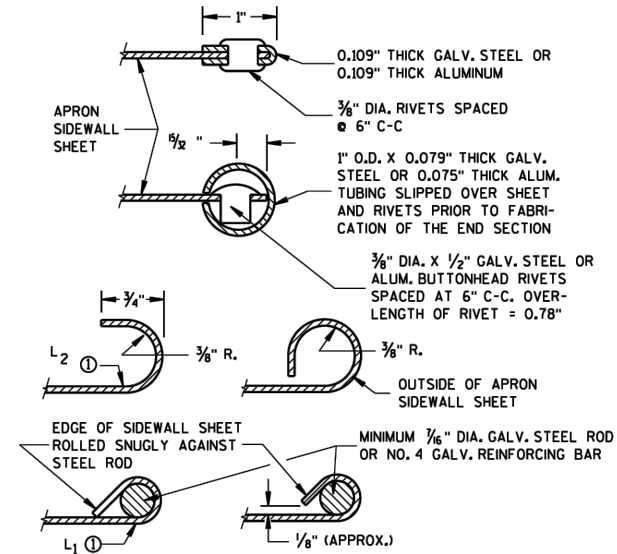
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VICE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8-30-94 DATE /S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

S.D.D. 8 F 1-11

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