BIDDING DOCUMENTS

FOR THE PROJECT TITLED:

Stop 17 & 18 Drainage Improvement

PROJECT OWNER:

Town of Long Beach



Town of Long Beach Town Council

Robert Lemay – President John Wall – Member Mike Johnstone – Member Mary Lou McFadden – Member John Kocher - Member

Town of Long Beach Town Council Affiliates

Mark J. Swistek – Town Administrator Tim Perry – Clerk Treasurer Chris Willoughby – Town Attorney

BIDDING DOCUMENTS PREPARED BY:

Haas & Associates, LLC



Date Issued: August 18, 2023

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OFFICIAL NOTICE TO BIDDERS

SECTION 00 11 13

Public notice is hereby given that the Town of Long Beach, La Porte County, Indiana ("Owner") is requesting Bids for the construction of the "Stop 17 and 18 Drainage Improvements Project" (the "Project").

PROJECT DESCRIPTION:

This public improvement project is located in the Town of Long Beach, Indiana, and consists generally of the installation of a new storm drainage system between Stop 17 and Stop 18 along Lake Shore Drive in the Town of Long Beach, Indiana. This includes the installation of catch basins, storm manholes, storm sewers, stormwater treatment, drywells, and an outfall. The Work included in this PROJECT includes all labor, materials, equipment, supplies, and services described in the Contract Documents.

BID SUBMITTAL INSTRUCTIONS:

Sealed Bids are to be delivered to the Office of the Town Clerk-Treasurer of Long Beach, Indiana, at the Long Beach Town Hall, 2400 Oriole Trail, Long Beach, IN 46360, and are required to be received by 7:00 PM (Central Time) on Monday, September 11, 2023. Said bids will be publicly opened and read aloud at said time and location. Any bids received after the above date and time shall be disqualified and will be returned to the Prospective Bidder unopened.

Bids shall be submitted on the designated Bid Form in the Bidding Documents. Each Bid shall be accompanied by a Contractor's Bid for Public Works "Form 96," prescribed by the Indiana State Board of Accounts, and a Non-Collusion Affidavit, an E-Verify Affidavit, an Iran Non-Investment Certification, and other documents as are set forth on the Bid Form.

A Bidder shall submit two (2) hard copies and one digital copy (i.e., a Portable Document Format ("PDF") file on a USB flash drive) of their Bid and all bid documents as described in the Contract Documents.

GOVERNING BIDDING LAWS:

The Owner anticipates the Project's total bid price will exceed \$150,000.00. As such, the Project will be let in compliance with Indiana Code (I.C.) Title 36-1-12-4 (Public Works Projects) and awarded to the lowest responsive and responsible bidder in the manner prescribed by the Bidding Documents and consistent with State Law.

BIDDING DOCUMENTS:

On or after Monday, August 21, 2023, the Bidding Documents package, including the project Specifications and Drawings, among other necessary Contract Documents, can be obtained or examined by prospective bidders at the Issuing Office. Partial sets of Bidding Documents will not be available from the Issuing Office. Neither Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including addenda, if any, obtained from sources other than the Issuing Office.

To examine the Bidding Documents, prospective bidders may visit the Issuing Office on Monday through Friday during the Issuing Office's regular office hours. Bidding Documents in electronic format can be purchased from the Issuing Office during the hours indicated above for a one-time, non-refundable payment of Twenty-Five Dollars (\$25.00), payable to the Issuing Office noted below. Please contact Dawn Milosevich at Haas & Associates, LLC, by phone at 219.872.9407, or by email at DawnM@HaasLLC.com with any questions regarding this process. For technical questions regarding the Drawings and Specifications or the bidding procedure, please contact Samuel Ozeh, P.E. of Haas & Associates, LLC, by phone at 219.872.9407 or by email at SamOzeh@HaasLLC.com.

Consulting Engineer Office / Issuing Office

Haas & Associates, LLC 526 Franklin Street Michigan City, IN 46360 219.872.9407

PRE-BID CONFERENCE:

A <u>mandatory</u> pre-bid conference for prospective Bidders will be held on Thursday, August 31, 2023, at 11:00 AM (Central Time) at the Issuing Office. At the pre-bid conference, a brief overview of the Contract Documents and requirements for bidders will be discussed, and questions from bidders regarding the project will be received.

BID SECURITY:

Bidders are required to secure their Bids by an acceptable certified Bid Bond or cashier's check to be submitted with their Bid on the designated Bid Bond form for an amount not less than five percent (5%) of the Total Bid Amount (inclusive of all defined Bid Alternates, if any), made payable to the Town of Long Beach, Indiana.

WITHDRAWAL OF BID:

No Bidder may withdraw their Bid within sixty (60) days following the date established herein for receiving formal bids, except for limited circumstances as set forth in the Instructions to Bidders. The Owner reserves the right to hold all bids for a period not to exceed sixty (60) days, and these bids shall remain in full force and effect during this period.

CONTRACT AWARD:

The Owner will make the award of the Contract. In determining the lowest, responsive, responsible Bid, the Owner will consider the Base Bid and any desired Alternate Bids in any desirable combination and all other relevant facts or matters stated in the Contract Documents or which the Owner may legally consider in determining the lowest, responsive, responsible Bidder.

The Owner reserves the right after all Bids have been examined and tabulated, to waive any informalities and insubstantial defects in any Bid and to accept the Bid which it deems to be the lowest, responsive, and responsible Bid and to reject any Bids received. All Bid awards are made subject to an appropriate contract being finalized between the Owner and the winning Bidder.

OTHER IMPORTANT DETAILS:

The Bidder to whom the work is awarded will be required to furnish a performance bond and a payment bond, each equal to one hundred percent (100%) of the contract price.

Each Bidder shall be prepared to promptly execute the construction Agreement, furnish the required bonds and certificates of insurance coverage for the Work, and to commence the Work per the provisions of the Contract Documents in the event the award of the Work is made to them.

Upon completing the Work as defined by the Contract Documents, the Contractor (awarded Bidder) shall be required to furnish a maintenance bond conditioned to guarantee the Work for the period designated in the Bidding Documents.

Additional Bidding Requirements, and provisions of the Contract and the Work, are defined in the Bidding Documents. For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders included in the Bidding Documents.

ISSUER DETAILS:

This advertisement is issued by the following:

Owner: Town of Long Beach, La Porte County, Indiana

By: Robert Lemay, Long Beach Town Council President

Attest: Tim Perry, Long Beach Clerk-Treasurer

Date: August 18, 2023

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

SECTION 00 21 00

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ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in Section 00 72 00 General Conditions and Section 00 73 00 Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
 - A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 *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). 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.

EJCDC[®] C-200, Instructions to Bidders for Construction Contract. Copyright[©] 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved. 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 2.04.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 Bidder is to submit the following information with its Bid to demonstrate Bidder's qualifications to perform the Work:
 - A. A completed Section 00 45 13 Bidder Qualification Statement
 - Insurance information (Article 4 of the Bidder Qualifications Statement) and information about Key Project Individuals (Article 5, Schedule C of the Bidders Qualifications Statement) may be provided after the Bid Opening and upon the request or notification by the Owner. Bidder shall be required to submit said information within two (2) days of Owner's notice.
 - B. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
 - C. A written statement that Bidder is authorized to do business in the state where the Project is located.
 - D. Subcontractor and Supplier qualification information.
 - E. Other required information regarding qualifications.
- 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 be held at the time and location indicated in **Section 00 11 13 Notice to Bidders** (advertisement or invitation to bid). Representatives of Owner and Engineer will be present to discuss the Project. It is each Bidder's responsibility to sign in at the pre-bid conference to verify its participation. Bidders must sign in using the name of the organization that will be submitting a Bid. A list of those that attended the pre-bid conference will be issued in an Addendum. Any notes recorded by the Engineer during the pre-Bid conference may be disseminated to prospective bidders; however, this is not guaranteed and Bidders should record their own notes as desired.

4.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that are deemed necessary in response to discussions at the pre-Bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

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

- 5.01 Site and Other Areas
 - A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.
- 5.02 *Existing Site Conditions*
 - A. Subsurface and Physical Conditions; Hazardous Environmental Conditions
 - 1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
 - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
 - 2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

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- 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. No other Site-related documents are available.
- 5.04 Site Visit and Testing by Bidders
 - A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
 - B. All access to any portions of the Site that are outside of the public Right-of-Way (ROW), other than during a regularly scheduled Site visit must be coordinated through the following Owner or Engineer contact for visiting the Site: Sam Ozeh, Haas & Associates, LLC (Engineer); samozeh@haasllc.com; (219) 872-9407. Bidder must conduct the required Site visit during normal working hours.
 - C. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
 - D. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.
 - E. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
 - F. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.
- 5.05 Owner's Safety Program
 - A. Site visits and work at the Site may be governed by an Owner safety program.

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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 and certifications 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. Samuel Ozeh, Haas & Associates, LLC (Engineer)
 - 1. Address: 526 Franklin Street, Michigan City, IN 46360
 - 2. Email: SamOzeh@HaasLLC.com
 - 3. Phone: (219) 872-9407
- 7.03 Questions posed by bidders to the Engineer regarding the meaning and intent of the Bidding Documents will be reviewed by the Engineer to determine if the questions warrant an official response via a modification to the Bidding Documents (i.e., addenda). If the question can be answered by referring to previously-issued Bidding Documents, the Engineer will assist the bidder by referring to those documents. If the questions cannot be suitably answered by referring to previously-issued Bidding Documents, then the Engineer will include an official answer to the question in an addendum to the Bidding Documents. Verbal, written, or other responses regarding questions that are made by

the Engineer are not binding or enforceable, and only responses duly issued as Bidding Documents shall be relied upon by the bidders to inform their bid. 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 fewer than five (5) 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 **as set forth in Section 00 11 13 Notice to Bidders** (advertisement or invitation to bid) as a percent of Bidder's maximum Bid price (determined by adding the base bid and all Bid Alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within ten (10) 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, 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 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 11.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work within two (2) days after Bid opening:
 - A. Excavation and underground utility installation
 - B. Concrete flatwork (sidewalks and drives)
 - C. Asphalt restoration work
 - D. Landscaping work
- 11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute and provide notice to Owner that the Bidder's Bid price will be increased, decreased, or remain unchanged by any difference in cost to the Contractor occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest responsive and responsible 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.

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- 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.

ARTICLE 14—SUBMITTAL OF BID

- 14.01 A bound copy of the Bid Form and the Bid Bond Form from the Bidding Documents 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 as set forth in **Section 00 11 13 Notice to Bidders** (advertisement or invitation to bid), 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 Notice to Bidders or 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 **Section 00 11 13 Notice to Bidders** (advertisement or invitation to bid) and, unless obviously non-responsive, read aloud publicly.

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, consistent with Indiana Law. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.
- 18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.
- 18.05 Evaluation of Bids
 - A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. For the determination of the apparent low Bidder 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.
 - C. The determination of the apparent low Bidder when Bid Alternates are included in the Bid shall be based on the aggregate total bid amount of the Base Bid plus any selected Bid Alternate(s), if any, for each respective Bidder or Bid received. The determination of which Bid Alternates are to be in included in the final contracted Work (i.e. the selected Bid Alternates) will be at the sole discretion of the Owner and recorded in the Notice of Award.
- 18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those

portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

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

ARTICLE 19-BONDS AND INSURANCE

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

ARTICLE 20—SIGNING OF AGREEMENT

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

ARTICLE 21—SALES AND USE TAXES

21.01 Owner is exempt from **Indiana** state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes must not be included in the Bid. Refer to Paragraph SC-7.10 of the Supplementary Conditions for additional information.

ATTACHMENT A - ITEMIZED BID FORM

SECTION 00 41 13

BASE BID - NOTES

1 Each item on the Itemized Bid Form includes all work as specified in the Drawings, Specifications, Special Provisions, Standard General Conditions, Supplementary Conditions, and any other Contract Documents whether that work is specified or noted in the Detailed Item Description or not.

BASE BID - ITEMS

<u>ltem</u>	<u>Spec.</u>	Item Name	Quantity	Unit	Unit Cost	Fytension	Detailed Item Description
<u>No.</u>	Section		Quantity	<u>unic</u>		Extension	betanea nem bescription
1	110	Mobilization and Demobilization	1	LS			
2	202	Clearing Right-of-Way	1	LS			
3	105	Construction Engineering	1	LS			
4	104	Maintenance of Traffic	1	LS			
5	205	Stormwater Management & Implementation	1	LS			
6	802	Sign, Relocate	1	EA			Remove and Replace Sign
7	203	Excavation, Common	36	CY			
8	301	Compacted Aggregate, No. 53	55	TON			
9	715	INDOT Type II Pipe, 10" Ductile	100	LF			
10	715	INDOT Type II Pipe, 18"	75	LF			
11	715	INDOT Type II Pipe, 18", Perforated	54	LF			
12	715	Structure, 48" dia, Type A	1	EA			
13	715	Structure, 18" dia FES and Erosion Control at Outlet	1	EA			
14	NA	Structure, Drywell-1200 gallon	1	EA			
15	NA	Structure, Drywell-1200 gallon with Catch Basin Traps	1	EA			
16	304	HMA Patching, Full Depth, Type B	16	TON			
17	607	Gutter, Concrete, Type A, Modified	50	LF			
18	610	Concrete, Driveway, 6 Inch	56	SY			
19	621	Seed Mixture, Modified, Leymus Mollis	15	LB			
20	616	Riprap, Revetment	113	TON			
21	213	Flowable Backfill, Non-Removable (RC Wall Segment Support)	1	CY			
22	720	Cap Existing Pipes	1	EA			

BASE BID TOTAL =

ATTACHMENT A - ITEMIZED BID FORM

SECTION 00 41 13

ALTERNATE 1 - NOTES

1 This alternate generally includes a spatial expansion of the work already included in the Base Bid.

² All work typically included in standard items "Mobilization and Demobilization", "Clearing Right-of-Way", "Construction Engineering", "Maintenance of Traffic", and "Stormwater Management & Implementation" that is required to complete this alternate work shall not be paid for directly but shall be included in the cost of other items

ALTERNATE 1 - ITEMS

<u>ltem</u> <u>No.</u>	<u>Spec.</u> Section	Item Name	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	Extension	Detailed Item Description
A1.1	802	Sign, Relocate	1	EACH			Remove and Replace Sign
A1.2	201	Tree, Remove, 6"<=Tree Dia.<=24"	4	EACH			
A1.3	301	Compacted Aggregate, No. 53	166	TON			
A1.4	715	INDOT Type II Pipe, 12"	98	LFT			
A1.5	715	INDOT Type II Pipe, 10" Ductile	80	LFT			
A1.6	715	INDOT Type II Pipe, 18"	390	LFT			
A1.7	715	Structure, 48" dia, Type A	4	EACH			
A1.8	715	Structure, 48" dia, Modified	2	EACH			
A1.9	304	HMA Patching, Full Depth, Type B	67	TON			
A1.10	610	Concrete, Driveway, 6 Inch	89	SYS			
A1.11	605	Concrete, Curb / Curb & Gutter	30	LFT			
A1.12	621	Sodding, Lawn Restoration	56	SYD			
A1.13	720	Cap Existing Pipes	1	EACH			

ALTERNATE 1 BID TOTAL =

ATTACHMENT A - ITEMIZED BID FORM

SECTION 00 41 13

ALTERNATE 2 - NOTES

1	This alter item to th	rnate revises the quantities and extensions for the Base Bid Items ne project.	listed belo	w to rer	nove work fron	n the Base Bid. This	s alternate also add a new Alternate 2 bid
2	All work t "Stormwa that are p this note	typically included in standard items "Mobilization and Demobilizat ater Management & Implementation" that is required to complete part of this alternate. Revisions to Base Bid quantities as part of th	ion", "Clear this alterna nis alternat	ring Rigl te work e shall r	nt-of-Way", "Coi shall not be pa not affect the B	nstruction Engineen id for directly but s ase Bid unit prices	ring", "Maintenance of Traffic", and shall be included in the cost of other items for the standard items referenced here in

ALTE	RNAT	E 2 - REVISED BASE BID ITEM QUANTITIES					
<u>ltem</u> <u>No.</u>	<u>Spec.</u> Section	Item Name	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	Extension	Detailed Item Description
15	NA	Structure, Drywell-1200 gallon with Catch Basin Traps	0	EA	SAME AS BASE BID	0	

ALTERNATE 2 - BID ITEMS

Item NameQuantityUnitUnit CostExtensionNo.Section	Detailed Item Description
A2.1 NA Structure, Hydrodynamic Separator, Cascade Separator (HDS) 1 EA	

ALTERNATE 2 BID TOTAL =

BID FORM

SECTION 00 41 00

The terms used in this Bid with initial capital letters have the meanings stated in Section 00 21 00 Instructions to Bidders, Section 00 72 00 General Conditions, and Section 00 73 00 Supplementary Conditions.

ARTICLE 1-OWNER AND BIDDER

1.01 This Bid is submitted to:

Town of Long Beach, Indiana c/o Office of the Clerk-Treasurer 2400 Oriole Trail, Long Beach, Indiana 46360

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 to be completed as required therein and submitted with and made a condition of this Bid:
 - A. Section 00 41 00 Bid Form with Attachment A Itemized Bid Form;
 - B. Required Bid Security;
 - C. Completed Contractor's Bid for Public Work Form 96 (Rev. 2013), prescribed by the Indiana State Board of Accounts;
 - D. List of Proposed Subcontractors and Suppliers;
 - E. Evidence of authority to do business in the state of the Project: Indiana Secretary of State Certificate of Existence;
 - F. Copy of Bidder's Indiana State Certificate of Qualifications for Public Works Contractors;
 - G. Bidder Qualification Statement with supporting data;
 - H. E-Verify affidavit and certification;
 - I. No Iranian Investment certification;
 - J. Contractor's Employee Drug Testing program;
 - K. Affidavit of Non-Collusion;
 - L. Certificate of Non-Segregated Facilities;
 - M. Equal Employment Opportunity (EEO) Clause;

EJCDC® C-410, Bid Form for Construction Contract. Copyright[©] 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved. N. Notice of Non-Discrimination of Employment;

ARTICLE 3—BASIS OF BID-UNIT PRICES

- 3.01 Unit Price Bids
 - A. Bidder will perform all Work so required by the Contract Documents at the indicated unit prices as follows:

Per 00 41 00 Attachment A - Itemized Bid Form, attached and bound to this Bid Form.

- Some individual pay items on the Itemized Bid Form have Lump Sum (L.S.) designated unit price types due to the particulars of how the Work for those respective pay items are quantified. For the purposes of this Bid and the Contract, these pay items with a Lump Sum unit price designation are to be considered as having a "Unit Price Bid Basis" categorization, and as such shall not require an associated Schedule of Values.
- B. Bidder acknowledges that:
 - 1. Each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
 - 2. Estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—TIME OF COMPLETION

- 4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates noted in the Agreement, which shall be consistent with the following:
 - A. The Substantial Completion date shall be the date calculated as 60 calendar days after the First Mobilization date and the Work shall be ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the date calculated as 30 calendar days after the Substantial Completion date.
 - B. The First Mobilization date shall be agreed to by the Owner and the Contractor prior to execution of the Agreement and under no circumstances shall be later than February 20, 2024.
- 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 consistent with Indiana Code (I.C.) 36-1-12-6(d).
- 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:

NOTE: Bidder is to complete this table:

Addendum Number	Addendum Date

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

- 6.01 *Bidder's Representations*
 - A. In submitting this Bid, Bidder represents the following:
 - 1. Bidder understands that it is the Bidder's responsibility and obligation to ensure it has received, reviewed, and understands all Bidding Documents including all addenda issued prior to the Bid opening and that its unit prices are consistent with such understanding.
 - 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 understands the requirements set forth in Indiana Code IC 5-16-13-10(c) for public works contracts of at least \$300,000 awarded after June 30, 2016, and that to be eligible to submit a bid for the public works contract, the contractor and its engineers, architects, and surveyors must be certified accordingly with the State of Indiana prior to submittal of a bid for the public works project. For more information regarding this requirement, Bidders are encouraged to review IC 5-16-13-10(c), IC 4-13.6-4, and IC 8-23-10.

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- 5. 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.
- 6. 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.
- 7. 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.
- 8. 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.
- 9. 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.
- 10. 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.
- 11. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- 6.02 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. *Bidder's Certifications*
 - A. The Bidder certifies the following:
 - 1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
 - 2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
 - 3. Bidder has not solicited or induced any individual or entity to refrain from bidding.

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

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printe	ed name of organization)
By:	
Name	(individual's signature)
Nume.	(typed or printed)
Title:	(tunad or printed)
Date:	(typed of printed)
	(typed or printed)
If Bidder is a corporation, a partnership, or a joint ver	nture, attach evidence of authority to sign.
Attest:	
News	(individual's signature)
Name:	(typed or printed)
Title:	
Deter	(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):	
	arm for Construction Contract
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BID FORM SECTION 00 41 00 PAGE 6 OF 6

CONTRACTOR'S BID FOR PUBLIC WORK - FORM 96

SECTION 00 20 60

CONTRACTOR'S BID FOR PUBLIC WORK - FORM 96

State Form 52414 (R2 / 2-13) / Form 96 (Revised 2013) Prescribed by State Board of Accounts

PART I

(To be completed for all bids. Please type or print)

	Date (month, day, year):
1. Gov	vernmental Unit (Owner):
2. Cou	inty:
3. Bido	der (Firm):
Add	Iress:
City	/State/ZIPcode:
4. Tele	ephone Number:
5. Age	ent of Bidder (if applicable):
Pursua	ant to notices given, the undersigned offers to furnish labor and/or material necessary to complete
the public work	s project of
(Governmental	Unit) in accordance with plans and specifications prepared by
	and dated for the sum of
	\$

The undersigned further agrees to furnish a bond or certified check with this bid for an amount specified in the notice of the letting. If alternative bids apply, the undersigned submits a proposal for each in accordance with the notice. Any addendums attached will be specifically referenced at the applicable page.

If additional units of material included in the contract are needed, the cost of units must be the same as that shown in the original contract if accepted by the governmental unit. If the bid is to be awarded on a unit basis, the itemization of the units shall be shown on a separate attachment.

The contractor and his subcontractors, if any, shall not discriminate against or intimidate any employee, or applicant for employment, to be employed in the performance of this contract, with respect to any matter directly or indirectly related to employment because of race, religion, color, sex, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

CERTIFICATION OF USE OF UNITED STATES STEEL PRODUCTS (If applicable)

I, the undersigned bidder or agent as a contractor on a public works project, understand my statutory obligation to use steel products made in the United States (I.C. 5-16-8-2). I hereby certify that I and all subcontractors employed by me for this project will use U.S. steel products on this project if awarded. I understand that violations hereunder may result in forfeiture of contractual payments.

ACCEPTANCE

The above bid is accepted this	day of	t	_, subject to the
following conditions:			
Contracting Authority Members:			
	PART II		
(For projects of \$	150,000 or more – IC 36-	1-12-4)	
Governmental Unit:			
Bidder (Firm)			
Date (month, day, year):			
These statements to be submitted und Attach additional pages for each section as ne	er oath by each bidder with eded.	and as a part of his	bid.

SECTION I EXPERIENCE QUESTIONNAIRE

1. What public works projects has your organization completed for the period of one (1) year prior to the date of the current bid?

Contract Amount	Class of Work	Completion Date	Name and Address of Owner
		- -	
			a sector de la companya de
		-	

2. What public works projects are now in process of construction by your organization?

Contract Amount	Class of Work	Expected Completion Date	Name and Address of Owner
	· .		
			· · · ·

List references from private firms for which you have performed work. List references from private firms for which you have performed work. SECTION II PLAN AND EQUIPMENT QUESTIONNAIRE Explain your plan or layout for performing proposed work. (Examples could include a narrative you could begin work, complete the project, number of works, etc. and any other information believe would enable the governmental unit to consider your bid.) Please list the names and addresses of all subcontractors (<i>i.e. persons or firms outside your o</i> who have performed part of the work) that you have used on public works projects during the p years along with a brief description of the work done by each subcontractor.	e and why?
List references from private firms for which you have performed work.	
List references from private firms for which you have performed work.	·····-
SECTION II PLAN AND EQUIPMENT QUESTIONNAIRE Explain your plan or layout for performing proposed work. (Examples could include a narrative you could begin work, complete the project, number of workers, etc. and any other information believe would enable the governmental unit to consider your bid.) Please list the names and addresses of all subcontractors (i.e. persons or firms outside your o who have performed part of the work) that you have used on public works projects during the p years along with a brief description of the work done by each subcontractor.	
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Please list the names and addresses of all subcontractors (<i>i.e. persons or firms outside your o who have performed part of the work</i>) that you have used on public works projects during the pyears along with a brief description of the work done by each subcontractor.	tive of whe lion which y
Please list the names and addresses of all subcontractors <i>(i.e. persons or firms outside your o who have performed part of the work)</i> that you have used on public works projects during the pyears along with a brief description of the work done by each subcontractor.	
Please list the names and addresses of all subcontractors (i.e. persons or firms outside your o who have performed part of the work) that you have used on public works projects during the pyears along with a brief description of the work done by each subcontractor.	
	ur own firm he past five

3. If you intend to sublet any portion of the work, state the name and address of each subcontractor, equipment to be used by the subcontractor, and whether you will require a bond. However, if you are unable to currently provide a listing, please understand a listing must be provided prior to contract approval. Until the completion of the proposed project, you are under a continuing obligation to immediately notify the governmental unit in the event that you subsequently determine that you will use a subcontractor on the proposed project.

4. What equipment do you have available to use for the proposed project? Any equipment to be used by subcontractors may also be required to be listed by the governmental unit.

5. Have you entered into contracts or received offers for all materials which substantiate the prices used in preparing your proposal? If not, please explain the rationale used which would corroborate the prices listed.

SECTION III CONTRACTOR'S FINANCIAL STATEMENT

Attachment of bidder's financial statement is mandatory. Any bid submitted without said financial statement as required by statute shall thereby be rendered invalid. The financial statement provided hereunder to the governing body awarding the contract must be specific enough in detail so that said governing body can make a proper determination of the bidder's capability for completing the project if awarded.

SECTION IV CONTRACTOR'S NON - COLLUSION AFFIDAVIT

The undersigned bidder or agent, being duly sworn on oath, says that he has not, nor has any other member, representative, or agent of the firm, company, corporation or partnership represented by him, entered into any combination, collusion or agreement with any person relative to the price to be bid by anyone at such letting nor to prevent any person from bidding nor to include anyone to refrain from bidding, and that this bid is made without reference to any other bid and without any agreement, understanding or combination with any other person in reference to such bidding.

He further says that no person or persons, firms, or corporation has, have or will receive directly or indirectly, any rebate, fee, gift, commission or thing of value on account of such sale.

SECTION V OATH AND AFFIRMATION

I HEREBY AFFIRM UNDER THE PENALTIES FOR PERJURY THAT THE FACTS AND INFORMATION CONTAINED IN THE FOREGOING BID FOR PUBLIC WORKS ARE TRUE AND CORRECT.

Dated at		this	day of	7
	.		· · · · · · · · · · · · · · · · · · ·	
			(Name of Organization)	
	Ву			
			(Title of Person Signing)	
	ACI	KNOWLEDGE	MENT	- - -
STATE OF)			
COUNTY OF) ss)			
Before me, a Notary Public, perse	onally appeare	d the above-na	ned	and
swore that the statements contain	ned in the fore	joing document	are true and correct.	
Subscribed and sworn to before a	me this	day of		
		.	Notary Public	
M. Orangia in Fusional				
My Commission Expires:				
County of Residence:				

Part of State Form 52414 (R2 / 2-13) / Form 96 (Revised 2013)

BID OF	
	(Contractor)
	(Address)
FOR	
PUBLIC WORKS PRO	JECTS
OF	
ad	
	······································
ion taken	

-

BID SECURITY FORM

SECTION 00 43 00

(PENAL SUM)

Bidder	<u>Surety</u>	
Name:	Name:	
Address (principal place of business):	Address (principal place of business):	
<u>Owner</u>	Bid	
Name: Town of Long Beach, Indiana	Project (name & location):	
Address (principal place of business):	Name: Stops 17 & 18 Drainage Improvement	
Town of Long Beach, Indiana, 46360		
	Bid Opening Date:	
Bond		
Penal Sum (As set forth in Section 00 11 13 N	otice to Bidders):	
Date of Bond:		
Surety and Bidder, intending to be legally bound her	eby, subject to the terms set forth in this Bid Security	
Form, do each cause this Bid Security to be duly exe	ecuted by an authorized officer, agent, or representative.	
Bidder	Surety	
(Full formal name of Bidder)	(Full formal name of Surety) (corporate seal)	
By:	By:	
(Signature)	(Signature) (Attach Power of Attorney)	
Name:	Name:	
(Printed or typed)	(Printed or typed)	
litle:	litle:	
Attest:	Attest:	
(Signature)	(Signature)	
Name:	Name:	
(Printed or typed)	(Printed or typed)	
Notes: (1) Note: Addresses are to be used for giving any requir	THUE. red notice. (2) Provide execution by any additional narties, such as joint	
venturers, if necessary.		

EJCDC[®] C-430, Bid Bond (Penal Sum Form).

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- 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 herein).
- 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 herein and receipt 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 45 13

BIDDER QUALIFICATIONS STATEMENT

ARTICLE 1—GENERAL INFORMATION

1.01 Provide contact information for the Business:

Legal Na	ame of Business:							
Corpora	Corporate Office							
Name:				Phone number:				
Title:				Email address:				
Busines	s address of corpo	rate office:						
Local Of	fice							
Name:				Phone number:				
Title:				Email address:				
Busines	s address of local o	office:						

1.02 Provide information on the Business's organizational structure:

Form of Business: Sole Proprietorship Partnership Corporation							
□ Limited Liability Company □ Joint Venture comprised of the following companies:							
1.	1.						
2.	2.						
3.	3.						
Provide a separate Qualification Statement for each Joint Venturer.							
Date Business was formed: State in which Business was formed:							
Is this Business authorized to operate in the Project location? Yes No Pending							

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Name of business:	Affiliation:	
Address:		
Name of business:	Affiliation:	
Address:		
Name of business:	Affiliation:	
Address:		

1.04 Provide information regarding any the Business's officers, partners, and project managers who will have signatory and spending authority for this Bid and Contract:

Name:	Title:
Authorized to sign contracts: Yes No	Limit of Authority: \$
Name:	Title:
Authorized to sign contracts: Yes No	Limit of Authority: \$
Name:	Title:
Authorized to sign contracts: Yes No	Limit of Authority: \$
Name:	Title:

ARTICLE 2—FINANCIAL

2.01 Provide information regarding the Business's financial stability. Provide the most recent audited financial statement, and if such audited financial statement is not current, also provide the most current financial statement.

Financial Institution:						
Business address:						
Date of Business's mo	Date of Business's most recent financial statement:					
Date of Business's mo	Date of Business's most recent audited financial statement:					
Financial indicators from the most recent financial statement						
Contractor's Current Ratio (Current Assets ÷ Current Liabilities)						
Contractor's Quick Rat Short Term Investmen	Contractor's Quick Ratio ((Cash and Cash Equivalents + Accounts Receivable + Short Term Investments) ÷ Current Liabilities)					

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ARTICLE 3—SURETY INFORMATION

3.01 Provide information regarding the surety company that will issue required bonds on behalf of the Business, including but not limited to performance and payment bonds.

Surety Name:							
Surety is a corpo	ration organiz	zed and existing u	nder the laws of th	e state of:			
Is surety authoriz	zed to provide	e surety bonds in t	the Project location	? 🗆 Yes 🗆] No		
Is surety listed in Federal Bonds ar (as amended) by □ Yes □ No	Is surety listed in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" published in Department Circular 570 (as amended) by the Bureau of the Fiscal Service, U.S. Department of the Treasury? □ Yes □ No						
Mailing Address							
(principal place c	of business):						
Physical Address							
(principal place c	(principal place of business):						
Phone (main): Phone (claims):							

ARTICLE 4—INSURANCE

- 4.01 Bidder may elect to provide the requested information within this Article 4 (Insurance) after the Bid Opening and upon the request or notification by the Owner, subject to the provisions as set forth in the Instructions to Bidders.
- 4.02 Provide information regarding Business's insurance company(s), including but not limited to its Commercial General Liability carrier. Provide information for each provider.

Name of insurance provider, and type of policy (CLE, auto, etc.):						
Insurance Provid	ler	Type of Policy (Coverage Provided)				
Are providers licensed or auth	orized to issue po	licies in the Projec	ct location?	🗆 Yes 🗆 No		
Does provider have an A.M. Be	est Rating of A-VII	or better?		🗆 Yes 🗆 No		
Mailing Address						
(principal place of business):						

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Physical Address (principal place of business):		
Phone (main):		Phone (claims):

ARTICLE 5—CONSTRUCTION EXPERIENCE

5.01 Provide information that will identify the overall size and capacity of the Business.

Average number of current full-time employees:	
Estimate of revenue for the current year:	
Estimate of revenue for the previous year:	

5.02 Provide information regarding the Business's previous contracting experience.

Years of experience with projects like the proposed project:						
As a general contractor:	As a joint venturer:					
Has Business, or a predecesso	r in interest, or an affiliate ide	entified in Paragraph 1.03:				
Been disqualified as a bidde	r by any local, state, or federa	l agency within the last 5 years?				
🗆 Yes 🗆 No						
Been barred from contractir	Been barred from contracting by any local, state, or federal agency within the last 5 years?					
🗆 Yes 🗆 No						
Been released from a bid in the past 5 years? \Box Yes \Box No						
Defaulted on a project or failed to complete any contract awarded to it? \Box Yes \Box No						
Refused to construct or refused to provide materials defined in the contract documents or in						
a change order? 🗆 Yes 🗆 No						
Been a party to any currently pending litigation or arbitration? Yes No						
Provide full details in a separa	te attachment if the response	e to any of these questions is Yes.				

- 5.03 List a maximum of three projects similar in type and cost of construction currently under contract in Schedule A and provide indicated information.
- 5.04 List a minimum of three and a maximum of six projects completed in the last 5 years in Schedule B and provide indicated information to demonstrate the Business's experience with projects similar in type and cost of construction.
- 5.05 In Schedule C, provide information on key individuals whom Business intends to assign to the Project. Provide resumes for those individuals included in Schedule C. Key individuals include the

Project Manager, Project Superintendent, Quality Manager, and Safety Manager. Resumes may be provided for Business's key leaders as well.

A. Bidder may elect to provide the requested information in the Schedule C after the Bid Opening and upon the request or notification by the Owner, subject to the provisions as set forth in the Instructions to Bidders.

ARTICLE 6—REQUIRED ATTACHMENTS

- 6.01 Provide the following information with the Statement of Qualifications:
 - A. If Business is a Joint Venture, separate Qualifications Statements for each Joint Venturer, as required in Paragraph 1.02.
 - B. Financial statements as required by Paragraph 2.01.
 - C. Attachments providing additional information as required by Paragraph 5.02.
 - D. Schedule A (Current Projects) as required by Paragraph 5.03.
 - E. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 5.04.
 - F. Schedule C (Key Individuals) and resumes for the key individuals listed, as required by Paragraph 5.05.
 - 1. Schedule C may be provided after the Bid Opening per 5.05.A
 - G. Additional items as pertinent.

This Statement of Qualifications is offered by:

Business:

	(typed or printed name of organization)						
_							
By:	(individual's signature)						
Name							
Name.	(typed or printed)						
Title:							
	(typed or printed)						
Date:							
/If Durain ag	(aate signed)						
(If Business	s 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)						
Address fo	r giving notices:						
Designator							
Designated	a Representative:						
Name:	(typed or printed)						
	(typed of printed)						
litle:	(typed or printed)						
Address:							
Dhanai							
Phone:							
Email:							

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Schedule A—Current Projects

Name of Organization							
Project Owner			Project Nam	ne			
General Description of P	roject						
Project Cost			Date Projec	t			
Key Project Personnel	Project Manager	Project Super	rintendent	Sat	fety Manager	Quality Control Manager	
Name							
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)							
	Name	Title/Position	Organ	ization	Telephone	Email	
Owner							
Designer							
Construction Manager							
Project Owner			Broject Nam				
General Description of R	roioct		FIOJECT Nall	le			
Broject Cost	loject		Data Brajac	•			
Koy Project Cost	Droject Manager	Drojact Supa	Date Plojec			Quality Control Managar	
Key Project Personner	Project Manager	Project Super	Intendent	Sd	iety Manager	Quality Control Manager	
Name							
Reference Contact Inform	nation (listing names indica	tes approval to contactin	ig the names in	dividuals as	a reference)		
	Name	Title/Position	Organ	ization	Telephone	Email	
Owner							
Designer							
Construction Manager							
Project Owner			Project Nam	ne			
General Description of P	roject						
Project Cost			Date Projec	t			
Key Project Personnel	Project Manager	Project Super	rintendent	Sat	fety Manager	Quality Control Manager	
Name							
Reference Contact Inform	Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)						
	Name	Title/Position	Organ	ization	Telephone	Email	
Owner							
Designer							
Construction Manager							

Schedule B—Previous Experience with Similar Projects

Name of Organization						
Project Owner			Project Nam	e		
General Description of P	roject					
Project Cost			Date Project			
Key Project Personnel	Project Manager	Project Superi	ntendent	Sa	afety Manager	Quality Control Manager
Name						
Reference Contact Inform	nation (listing names indica	ites approval to contacting	g the names ind	dividuals as	a reference)	
	Name	Title/Position	Organ	ization	Telephone	Email
Owner						
Designer						
Construction Manager						
Project Owner			Project Nam	0		
General Description of P	roiect		FIOJECT Nam	C		
Project Cost	loject		Date Project			
Key Project Personnel	Project Manager	Broject Manager Broject Superi		ntendent Safety Manager		Quality Control Manager
Name	riojeet Manager					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)						
	Name	Title/Position	Organ	ization	Telephone	Email
Owner						
Designer						
Construction Manager						
Project Owner			Project Nam	е		
General Description of P	roject				1	
Project Cost			Date Project		_	
Key Project Personnel	Project Manager	Project Manager Project Superi		intendent Safet		Quality Control Manager
Name						
Reference Contact Inform	nation (listing names indica	ites approval to contacting	g the names inc	dividuals as	a reference)	
	Name	Title/Position	Organ	ization	Telephone	Email
Owner						
Designer						
Construction Manager						

Schedule B—Previous Experience with Similar Projects

Name of Organization						
Project Owner			Project Nam	e		
General Description of P	roject					
Project Cost			Date Project	:		
Key Project Personnel	Project Manager	Project Superi	ntendent	Sa	afety Manager	Quality Control Manager
Name						
Reference Contact Inform	nation (listing names indica	ites approval to contacting	g the names ind	dividuals as	a reference)	
	Name	Title/Position	Organ	ization	Telephone	Email
Owner						
Designer						
Construction Manager						
Project Owner			Project Nam	0		
General Description of P	roiect		FIOJECT Nam			
Project Cost	loject		Date Project			
Key Project Personnel	Project Manager	Broject Manager Broject Superi		ntendent Safety Manager		Quality Control Manager
Name	riojeet Manager					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)						
	Name	Title/Position	Organ	ization	Telephone	Email
Owner						
Designer						
Construction Manager						
Project Owner			Project Nam	е		
General Description of P	roject				1	
Project Cost			Date Project		_	
Key Project Personnel	Project Manager	Project Manager Project Superi		intendent Safet		Quality Control Manager
Name						
Reference Contact Inform	nation (listing names indica	ites approval to contacting	g the names inc	dividuals as	a reference)	
	Name	Title/Position	Organ	ization	Telephone	Email
Owner						
Designer						
Construction Manager						

Schedule C—Key Individuals

Project Manager		
Name of individual		
Years of experience as project manager		
Years of experience with this organization		
Number of similar projects as project manager		
Number of similar projects in other positions		
Current Project Assignments		
Name of assignment	Percent of time used for	Estimated project
	this project	completion date
Reference Contact Information (listing names indicates	approval to contact named inc	lividuals as a reference)
Name	Name	
Title/Position	Title/Position	
Organization	Organization	
Telephone	Telephone	
Email	Email	
Project	Project	
Candidate's role on	Candidate's role on	
project	project	
Project Superintendent		
Name of individual		
Years of experience as project superintendent		
Years of experience with this organization		
Number of similar projects as project superintendent		
Number of similar projects in other positions		
Current Project Assignments		
Name of assignment	Percent of time used for	Estimated project
	this project	completion date
Reference Contact Information (listing names indicates	approval to contact named inc	lividuals as a reference)
Name	Name	
Title/Position	Title/Position	
Organization	Organization	
Telephone	Telephone	
Email	Email	
Project	Project	
Candidate's	Candidate's	
role on project	role on project	

Safety Manager					
Name of individual					
Years of experience as proj					
Years of experience with th	nis organization				
Number of similar projects	as project manager				
Number of similar projects	in other positions				
Current Project Assignmen	ts				
Name of assignment		Percent of time use	d for	Estimated project	
		this project		completion date	
Reference Contact Informa	tion (listing names indicates ap	proval to contact nam	ned indi	viduals as a reference)	
Name		Name			
Title/Position		Title/Position			
Organization		Organization			
Telephone		Telephone			
Email		Email			
Project		Project			
Candidate's role on		Candidate's role on			
project		project			
Quality Control Manager		1			
Name of individual					
Years of experience as project superintendent					
Years of experience with this organization					
Number of similar projects as project superintendent					
Number of similar projects in other positions					
Current Project Assignmen	ts	1		[
Name of assignment		Percent of time used for		Estimated project	
		this project		completion date	
Reference Contact Informa	ition (listing names indicates ap	proval to contact ham	ned indi	viduals as a reference)	
Name		Name			
		Organization			
Organization		Urganization			
Email Draiact		Dreject			
Project		Project			
candidate's		candidate's			
role on project		role on project			

AFFIDAVIT OF NON-COLLUSION SECTION 00 45 19

COMES NOV	V,			[name o	of Affiant]	, being duly	sworr	n upon	my
oath, state a	nd affirm the following	:							
1. lar	n an adult, over the age	of eighteen (18	3) years and am	legally competent	t.				
2. I ha	ave personal knowledge	of the informa	tion stated in thi	s Affidavit.					
3. I	hold the position	of			[state	position	or	title]	with
			[state name o	of company] and I	am autho	orized to ma	ake the	stater	nents
her	ein.								
4 any cor wo	v combination, collusion ntract, to prevent anoth rk.	n, understandin er bidder from	[state name g, or agreement bidding, or to in	of company] has with another bidd duce a bidder to r	not, dire ler to ma refrain fro	ctly or indir intain the p om bidding	rectly, rice of on the	entered the wo contra	d into ork or act or
5 bid per	der and without any a sons concerning the bi	greement, unde dding.	[state name erstanding, or co	of company]'s bio ombination, eithe	d is mad r directly	e without re or indirect	egard t ly, wit	to any h any	other other
Dated this	day of		, 20						
	[Signature of Affiant]								
	[Printed Name of Aff	iant]							
STATE OF COUNTY OF)) §)								
On this personally a correct.	day ppeared before me and	, 20, being duly swo	rn upon his/her	oath attested to t	[: he above	state name of and forego	of affia ing as	ant] true ar	nd
	NOTARY PUBLIC								
	[Signature]								
	[Printed Name]								
	County of Residence	:							
	Notary Expires:								

CERTIFICATE OF NON-SEGREGATED FACILITIES

SECTION 00 45 33

With his/her bid, each Bidder is required to submit a fully executed Certificate of Non-Segregated Facilities.

AGREEMENT

The Bidder/Quoter certifies that he/she/it does not maintain or provide for his/her/its employees any segregated facilities at any of his/her/its establishments, and that he/she/it does not permit his/her/its employees to perform their services at any location under his/her/its control, where segregated facilities are maintained. The Bidder/Quoter certifies further that he/she/it will not maintain or provide for his/her/its employees any segregated facilities at any of his/her/its establishments, and that he/she/it will not maintain or provide for his/her/its employees any segregated facilities at any of his/her/its establishments, and that he/she/it will not permit his/her/its employees to perform their services at any location under his/her/its control where segregated facilities are maintained. The Bidder/Quoter agrees that a breach of this certification will be a violation of the Equal Opportunity clause in any contract resulting from acceptance of this bid/quote. As used in this certification, the term "segregated facilities" means any waiting rooms, work area, restroom and washroom, restaurant and other eating areas, time-clocks, locker rooms and other storage or dressing areas, and transportation and housing facilities provided for employees which are segregated by explicit directives or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. The Bidder/Quoter agrees that (except where he/she/it has obtained identical certification from proposed subcontractors for specific time periods) he/she/it will obtain identical certification from proposed subcontractors for specific time periods) he/she/it will obtain identical certification from proposed subcontractors for specific time periods) he/she/it will obtain identical certification from proposed subcontractors for specific time periods) he/she/it will obtain identical certification from proposed subcontractor prior to the award of subcontracts exceeding \$10,000.00 which are not exemp

Name of Bidder/Quoter:

Ву:	
Name:	
Title:	
Official Mailing Address:	

EQUAL EMPLOYMENT OPPORTUNITY CLAUSE

SECTION 00 45 36

During the performance of this contract, the contractor agrees to do the following:

- (1) The contractor shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, sexual orientation, gender identity, military service, national origin, disability, or relationship. The contractor shall take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, religion, color, sex, sexual orientation, gender identity, military service, national origin, disability, or relationship. As used herein, the word "treated" shall mean and include, without limitation, the following: recruited, whether by advertising or other means; compensated, whether in the form of rates of pay or other forms of compensation; selected for training, including apprenticeship; promoted; upgraded; demoted; downgraded; transferred; laid off; and terminated. The contractor agrees to and shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contractor setting forth the provisions of this nondiscrimination clause.
- (2) The contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, military service, national origin, disability, or relationship.
- (3) The contractor shall send to each labor union or representative of workers with whom it/she/he has a collective bargaining agreement or other contact or understanding a notice advising the labor union or workers' representative of the contractor's commitments under the equal employment opportunity requirements of the Town, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (4) The contractor shall take such action as the Town may direct with respect to any subcontractor as a means of enforcing the provisions of paragraphs (1) through (6) herein, including penalties and sanctions for noncompliance; provided, however, that in the event the contractor becomes involved in or is threatened with litigation as the result of such direction by the Town, the Town will enter into such litigation as is necessary to protect the interests of the Town and to effectuate the Town's contract compliance/equal employment opportunity program. In the case of contracts receiving federal assistance, the contractor or the Town may request the United States to enter into such litigation to protect the interests of the United States.
- (5) The contractor shall include the provisions of paragraphs (1) through (6) of this equal employment opportunity clause in every subcontract or purchase order so that such provisions will be binding upon each subcontractor or vendor.
- (6) Refusal by the contractor or subcontractor to comply with any portion of this Program as herein stated and described will subject the offending party to any or all of the following penalties for violating its/his/her contract:
- a. Withholding of all future payments to the contractor under the involved public contract until it determined that the contractor or subcontractor is in compliance with the provisions of the contract.
- b. Being declared to be a non-responsible contractor and rejection for any public contract within the Town or any of its departments, agencies, or divisions until such time as the contractor or subcontractor demonstrates that it/she/he has established and shall carry out the policies of the Program as herein outlined.

c. Cancellation of the public contract and declaration of forfeiture of the performance bond. In cases in which there is substantial or material violation, or the threat of substantial or material violation, of the Program or compliance procedure as may be provided for by contract, appropriate proceedings may be brought by the Town to enforce those provisions, including enjoining, within applicable law, of contractors, subcontractors, or other organizations, individuals, or groups who prevent, directly or indirectly, or seek to prevent, directly or indirectly, compliance with the Program as herein stated.

IN AGREEMENT HEREOF, the Bidder/Quoter has hereunto set its/his/her hand this _____ day of _____, 20____.

Sole Proprietor Bidder

OR

Company or Partnership Bidder

By:_____ (Company/Partnership Representative)

OR

Corporate Bidder

By: _____ President or Authorized Signatory

ATTEST:_____ Secretary

NOTICE OF NON-DISCRIMINATION IN EMPLOYMENT SECTION 00 45 37

TO: _____

(Employees of contractor, union or organization of workers, employment referral agencies, and training program sponsors.)

You are advised that, under the provisions of these contracts and in accordance with Indiana law, contractors and subcontractors are obliged to take Affirmative Action to ensure equal employment opportunities without regard to race, creed, color, sex, sexual orientation, gender identity, military service, national origin, disability, or age. This obligation includes, but is not limited to, the following: Hiring, Placement, Upgrading, Transfer, Demotion, Recruitment, Advertising Or Solicitation For Employment, Treatment During Employment, Rates Of Pay Or Other Forms Of Compensation, Selection For Training Including Apprenticeship, Layoff, Or Termination.

This obligation extends, so far as the responsibility of the undersigned is concerned, to any arrangement under which journeymen or apprentices are selected and referred for work on its projects.

Pursuant to IC 5-16-6-1, Contractor agrees as follows:

- (a) That in the hiring of employees for the performance of work under this contract or any subcontract hereunder, no contractor, or subcontractor, nor any person acting on behalf of such contractor or subcontractor, shall, by reason of race, religion, color, sex, national origin or ancestry, discriminate against any citizen of the state of Indiana who is qualified and available to perform the work to which the employment relates;
- (b) That no contractor, subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under this contract on account of race, religion, color, sex, national origin, or ancestry;
- (c) That there may be deducted from the amount payable to the contractor by the State of Indiana or by any municipal corporation thereof, under this contract, a penalty of five dollars (\$5.00) for each person for each calendar day during which such person was discriminated against or intimidated in violation of the provisions of the contract; and
- (d) (d)That this contract may be cancelled or terminated by the State of Indiana or by any municipal corporation thereof, and all money due or to become due hereunder may be forfeited, for a second or any subsequent violation of the terms or conditions of this section of the contract.

Signature: _____

Contractor Liaison: _____

Contractor or Subcontractor: _____

Date: _____

Copies of this notice are to be furnished by the contractor to labor unions or other organizations of workers, apprenticeship, and training program sponsors, and employment referral agencies.

NO IRAN INVESTMENT CERTIFICATION SECTION 00 45 46

The Undersigned certifies pursuant to I.C. 5-22-16.5, et seq., that it is not involved in the Iranian Energy Industry and does not do business with Vendors involved in the Iranian Energy Industry. The Undersigned understands that providing a false certification may result in the consequences listed in IC 5-22-16.5-14, including termination of this Contract and denial of future contracts, as well as an imposition of a civil penalty.

I hereby declare, under the penalties for perjury, that the foregoing is true and correct.

Signature of Authorized Officer or Agent

Printed name and Title of Authorized Officer or Agent

Date

AFFIDAVIT OF E-VERIFY COMPLIANCE SECTION 00 45 47

COMES NO)W, [name of Affiant], being duly sworn upon my
oath, state	and affirm the following:
1. la	am an adult, over the age of eighteen (18) years and am legally competent.
2. 11	have personal knowledge of the information stated in this Affidavit.
3. I	hold the position of with
 b/	[state name of company] and I am authorized to make the statements
4	eren.
4 th 	dministration and will verify the work eligibility status of all newly hired employees of [
 ot	[state name of company] is not required to verify the work eligibility
51	atus of an newly fined employees through the E-verify program if the eventy program ceases to exist.
5. <u> </u>	nd determined that it does not employ any unauthorized aliens.
Dated this	day of, 20
	[Signature of Affiant]
	[Printed Name of Affiant]
STATE OF COUNTY O)) § F)
∩n this	day 20 [state name of Affiant]
personally correct.	appeared before me and being duly sworn upon his/her oath attested to the above and foregoing as true and
	NOTARY PUBLIC
	[Signature]
	[Printed Name] County of Residence:
	Notary Expires:

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

SECTION 00 52 00

This Agreement is by and between Town of Long Beach, LaPorte County, Indiana, ("Owner") and _____ ("Contractor").

Terms used in this Agreement have the meanings stated in Section 00 72 00 General Conditions and Section 00 73 00 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, including but not limited to:

Installation of new stormwater collection and treatment infrastructure and replacement of disturbed surface materials such as asphalt, concrete, and other material.

ARTICLE 2—THE PROJECT

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

A stormwater drainage improvement project to address drainage issues at and near Stop 17 and Stop 18 along Lake Shore Drive in Long Beach, Indiana.

ARTICLE 3—ENGINEER

- 3.01 The Owner has retained **Haas & Associates, LLC** ("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 Engineer.

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: Dates*
 - **A.** The Work will be substantially complete on or before the date calculated as 60 calendar days after the First Mobilization date and be ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the date calculated as 30 calendar days after the Substantial Completion date. The First Mobilization date is hereby established as follows:

First Mobilization Date: _____ (no later than February 20, 2024).

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 **\$500 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.
 - 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 \$500 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.

4.04 Special Damages

- A. Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.
- C. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.

ARTICLE 5-CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work, in accordance with the Contract Documents, as follows:
 - A. Subject to adjustment under the Contract, at the prices stated in Contractor's Bid, attached hereto as an Exhibit, totaling ______

______dollars (\$______), inclusive of any Bid Alternate(s) selected by the Owner as described in the Notice of Award, subject to final adjustment based on actual quantities.

- B. For all Unit Price Work, the Contract Price shall be 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, per the unit prices stated in Contractor's Bid, times the actual quantity of that item).
- C. 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 on or about the second (2nd) Monday of each month, corresponding to the Owner's regularly-scheduled public meeting schedule, 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 per the provisions of SC-15.01, 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. 90 percent (90%) of the value of the Work completed including the cost of materials and equipment (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. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent (100%) of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 200 percent (200%) of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.
- 6.03 Final Payment
 - A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.
- 6.04 Consent of Surety
 - A. Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.
- 6.05 Interest
 - A. All amounts not paid when due will bear interest at the rate as prescribed by Indiana Law.

ARTICLE 7—CONTRACT DOCUMENTS

- 7.01 Contents
 - A. The Contract Documents consist of all of the following:
 - 1. This Agreement.
 - 2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
 - 3. General Conditions.
 - 4. Supplementary Conditions.
 - 5. Specifications as listed in the table of contents of the project manual (copy of list attached).
 - 6. Drawings (not attached but incorporated by reference) consisting of seven (7) sheets with each sheet bearing the following general title: **Stops 17 & 18 Drainage Improvement**
 - 7. [Not Used]
 - 8. Addenda (numbers _____ to _____, inclusive).
 - 9. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid, including attached Itemized Bid Form.
 - b. All affidavits and certifications by Contractor as part of Contractor's Bid, as Bid attachments or otherwise.

- 10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
 - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8-REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

- 8.01 *Contractor's Representations*
 - A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 - 1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 - 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 - 5. [Not used.]
 - 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;
 - "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.

ARTICLE 9—INDIANA STATE LAW

- 9.01 The Contractor shall comply with all applicable provisions of Indiana laws, rules, and regulations, including, but not limited to, the following:
- 9.02 Public Works
 - A. The provisions and requirements of Indiana Code (I.C.) 5-16-13-1, *et seq.*, are incorporated herein by reference.
- 9.03 Drug Testing Program
 - A. Contractor shall comply with all applicable provisions of Indiana Code (I.C.) 4-13-18 regarding Contractor's employee drug testing plan, all of which are incorporated herein by reference.

- 9.04 *Fair Labor Standards*
 - A. Contractor shall comply with minimum wage, overtime, and wage payment timing requirements of the federal Fair Labor Standards Act and Indiana Code (I.C.) 22-2-2-8.
- 9.05 Steel Products
 - A. Contractor shall comply with Indiana Code (I.C.) 5-16-8 which requires public contracts to use domestic steel products in the performance of the Work.
- 9.06 Plumbing Contractors
 - A. Contractor shall comply with Indiana Code (I.C.) 36-1-12-21 which requires that any plumbing work under a public works contract to be installed by a licensed plumbing contractor under Indiana Code 25-28.5-1.
- 9.07 Trench Safety Systems
 - A. Contractor shall comply with Indiana Code (I.C.) 36-1-12-20 which states that all trenches at least five (5) feet in depth require trench safety systems which shall be in compliance with Occupational Safety and Health Administration (OSHA) regulations 29 CFR 1926, Subpart P.
- 9.08 Anti-Discrimination Requirements
 - A. Contractor shall comply with the anti-discrimination provisions of Indiana Code (I.C.) 15-15-6.

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

his Agreement will be effective on	(which is t
Owner:	Contractor:
(typed or printed name of organization)	(typed or printed name of organization)
Bv:	Bv:
(individual's signature)	(individual's signature)
Date:	Date:
(date signed)	(date signed)
Name:	Name ⁻
(typed or printed)	(typed or printed)
Title	Title [.]
(typed or printed)	(typed or printed)
	(If entity is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)
Attest:	Attest:
(individual's signature)	(individual's signature)
Title:	Title:
(typed or printed)	(typed or printed)
Address for giving notices:	Address for giving notices:
Designated Representative:	Designated Representative:
Name [.]	Name [.]
(typed or printed)	(typed or printed)
Title [.]	Title [.]
(typed or printed) Address:	(typed or printed) Address:
Phone:	Phone:
Email:	Email:
(If entity is a corporation, attach evidence of authority to sign. If	Linaii.
entity is a public body, attach evidence of authority to sign and	License No.:
resolution or other documents authorizing execution of this	(where applicable)
Agreement.)	State:

PERFORMANCE BOND FORM

SECTION 00 61 13

Contractor	Surety
Name:	Name:
Address (principal place of business):	Address (principal place of business):
Owner	Contract
Name: Town of Long Beach, Indiana	Description (name and location):
Mailing address (principal place of business): c/o Long Beach Clerk-Treasurer's Office	Name: Stops 17 & 18 Drainage Improvement Location: Lake Shore Drive - Long Beach, Indiana
2400 Oriole Trail	
Long Beach, Indiana, 46360	Contract Price:
	Effective Date of Contract:
Bond	
Bond Amount:	
Date of Bond:	
(Date of Bond cannot be earlier than Effective Date of Contract)	
Modifications to this Bond form: None See Paragra	ph 16
Surety and Contractor, intending to be legally bound Performance Bond, do each cause this Performance agent, or representative.	hereby, subject to the terms set forth in this Bond to be duly executed by an authorized officer,
Contractor as Principal	Surety
(Full formal name of Contractor)	(Full formal name of Surety) (corporate seal)
Bv:	Bv:
(Signature)	(Signature)(Attach Power of Attorney)
Name:	Name:
(Printed or typed)	(Printed or typed)
Title:	Title:
Attest:	Attest:
(Signature)	(Signature)
Name:	Name:
(Printed or typed)	(Printed or typed)
Title:	Title:
Notes: (1) Provide supplemental execution by any additional part Surety, Owner, or other party is considered plural where applicab	ries, sucn as joint venturers. (2) Any singular reference to Contractor, le.

EJCDC[®] C-610, Performance Bond.

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- 1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, 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 remediate 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: _____

PAYMENT BOND FORM

SECTION 00 61 14

Contractor	Surety
Name:	Name:
Address (principal place of business):	Address (principal place of business):
Owner	Contract
Name: Town of Long Beach, Indiana	Description (name and location):
Mailing address (principal place of business):	Project: Stops 17 & 18 Drainage Improvement
c/o Long Beach Clerk-Treasurer's Office	Location: Lake Shore Drive - Long Beach, Indiana
2400 Oriole Trail Long Beach, Indiana, 46360	Contract Price:
	Effective Date of Contract:
Bond	
Bond Amount:	
Date of Bond:	
(Date of Bond cannot be earlier than Effective Date of Contract) Modifications to this Bond form:	
\square None \square See Paragraph 18	
Surety and Contractor, intending to be legally bound Bond, do each cause this Payment Bond to be duly ex-	hereby, subject to the terms set forth in this Payment xecuted by an authorized officer, agent, or
Contractor as Principal	Surety
(Full formal name of Contractor)	(Full formal name of Surety) (corporate seal)
Ву:	Ву:
(Signature)	(Signature)(Attach Power of Attorney)
Name:	Name:
(Printed or typed)	(Printed or typed)
Title:	Inte:
Attest:	Attest:
(Signature)	(Signature)
Name:	Name:
(Printed or typed)	(Printed or typed)
Notes: (1) Provide supplemental execution by any additional parti	es, such as joint venturers. (2) Any singular reference to Contractor.
Surety, Owner, or other party is considered plural where applicable	

EJCDC[®] C-615, Payment Bond.

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- 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,

Copyright[©] 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved. 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: _____

WARRANTY BOND FORM

SECTION 00 61 19

Contractor	Surety
Name:	Name:
Address (principal place of business):	Address (principal place of business):
Owner	Construction Contract
Name: Town of Long Beach, Indiana	Description (name and location):
Address (principal place of business): c/o Long Beach Clerk-Treasurer's Office	Project: Stops 17 & 18 Drainage Improvement Location: Lake Shore Drive - Long Beach, Indiana
2400 Oriole Trail Long Beach Indiana 46360	Contract Price:
	Effective Date of Contract:
	Contract's Date of Substantial Completion:
Bond	
Bond Amount:	Bond Period:
Date of Bond:	_
Modifications to this Bond form:	
Surety and Contractor, intending to be legally bound h cause this Warranty Bond to be duly executed by an a	ereby, subject to the terms set forth herein, do each uthorized officer, agent, or representative.
Contractor as Principal	Surety
(Full formal name of Contractor)	(Full formal name of Surety) (corporate seal)
By:	By:
(Signature)	(Signature) (Attach Power of Attorney)
(Printed or typed)	Name:(Printed or typed)
Title:	Title:
Attest:	Attest:
(Signature)	(Signature)
Name:	Name:
(Printea or typea) Title:	(Printea or typea) Title:
Notes: (1) Provide supplemental execution by any additional partie Surety, Owner, or other party is considered plural where applicable	s, such as joint venturers. (2) Any singular reference to Contractor,

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- 1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract's Correction Period Obligations. The Construction Contract is incorporated herein by reference.
- 2. If the Contractor performs the Correction Period Obligations, the Surety and the Contractor shall have no obligation under this Warranty Bond.
- 3. If Owner gives written notice to Contractor and Surety during the Bond Period of Contractor's obligation under the Correction Period Obligations, and Contractor does not fulfill such obligation, then Surety shall be responsible for fulfillment of such Correction Period Obligations. Surety shall either fulfill the Correction Period Obligations itself, through its agents or contractors, or, in the alternative, Surety may waive the right to fulfill the Correction Period Obligations itself, and reimburse the Owner for all resulting costs incurred by Owner in performing Contractor's Correction Period Obligations, including but not limited to correction, removal, replacement, and repair costs.
- 4. The Surety's liability is limited to the amount of this Warranty Bond. Renewal or continuation of the Warranty Bond will not modify such amount, unless expressly agreed to by Surety in writing.
- 5. The Surety shall have no liability under this Warranty Bond for obligations of the Contractor that are unrelated to the Construction Contract. No right of action will accrue on this Warranty Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
- 6. Any proceeding, legal or equitable, under this Warranty Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and must be instituted within two years after the Surety refuses or fails to perform its obligations under this Warranty Bond.
- 7. Written notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown in this Warranty Bond.
- 8. Definitions
 - 8.1. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page of this Warranty Bond, including all Contract Documents and changes made to the agreement and the Contract Documents.
 - 8.2. *Contract Documents*-All the documents that comprise the agreement between the Owner and Contractor.
 - 8.3. Correction Period Obligations-The duties, responsibilities, commitments, and obligations of the Contractor with respect to correction or replacement of defective Work, as set forth in the Construction Contract's Correction Period clause, EJCDC® C-700, Standard General Conditions of the Construction Contract (2018), Paragraph 15.08, as duly modified.
 - 8.4. *Substantial Completion*—As defined in the Construction Contract.
 - 8.5. *Work*-As defined in the Construction Contract.
- 9. Modifications to this Bond are as follows: _____
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
 - 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:
 - 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;
 - 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, 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 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.
 - 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.
 - 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 evaluating 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
 - 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
 - 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 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, expediters, 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.
 - 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
 - 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
- I. Other items entitle Owner to a set-off against the amount recommended.
- 2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
- 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 Contractor's Warranty of Title

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

15.03 Substantial Completion

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

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

15.04 Partial Use or Occupancy

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

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

- 1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
- 2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
- 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
- 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.
- 15.05 Final Inspection
 - A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 Final Payment

A. Application for Payment

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

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

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

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

15.08 Correction Period

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

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

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

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

16.02 Owner May Terminate for Cause

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

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

16.03 *Owner May Terminate for Convenience*

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

16.04 Contractor May Stop Work or Terminate

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

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

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 Methods and Procedures

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

ARTICLE 18—MISCELLANEOUS

18.01 Giving Notice

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

18.02 Computation of Times

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

18.03 Cumulative Remedies

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

18.04 Limitation of Damages

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

18.05 No Waiver

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.
- 18.06 Survival of Obligations
 - A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.
- 18.07 Controlling Law
 - A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 Assignment of Contract

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

18.09 Successors and Assigns

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

18.10 Headings

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

SUPPLEMENTARY CONDITIONS SECTION 00 73 00

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

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

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

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 Defined Terms

SC-1.01.A.32.5 Add the following paragraph to new section 1.01.A.32.5:

"Resident Superintendent – The Contractor's representative who is responsible for the day-today operation of the Construction site."

- SC-1.01.A.29 Amend the definition as follows:
 - "Notice to Proceed A written notice by Owner to Contractor on which Contractor shall start to perform the off-site Work."
- SC-1.01.A.29.1 Add the following paragraph to new section 1.01.A.29.1:
 - *"First Mobilization* The date on which the Contractor is permitted to mobilize and deploy equipment and personnel to the site to commence on-site Work.
 - a) The First Mobilization is distinct from the Notice to Proceed which pertains to commencement of off-site Work.
 - b) The First Mobilization date submitted by the Contractor with their bid shall not be changed without written approval from the Owner."

ARTICLE 2 - PRELIMINARY MATTERS

2.02 Copies of Documents

SC-2.02.A Amend the first sentence in this paragraph to read as follows:

"Owner shall furnish to Contractor one (1) printed copies of the Contract Documents (including one fully signed counterpart of the Agreement), and one (1) copy in electronic portable document format (PDF)."

2.03 Before Starting Construction

SC-2.03.A Amend the first sentence to read as follows:

"Preliminary Schedules: Within seven (7) days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), and, minimally, three (3) days prior to the Preconstruction Conference, Contractor shall submit to Engineer for timely review:"

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 Commencement of Contract Times; Notice to Proceed

SC-4.01.A Delete paragraph 4.01.A in its entirety and substitute the following paragraphs:

"In no event, other than a time extension mutually agreed upon by the Contractor and the Owner consistent with the provisions of Indiana Code (I.C.) 36-1-12-6(d)(2), will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier."

- SC-4.01.B Add a new section 4.01.B as follows:
 - "B. *Limited Notice to Proceed*: A Notice to Proceed with specified Site availability limitations or restrictions may be issued to the Contractor depending on the Project's specific Progress Schedule (construction milestones, stages or phases, etc.), the defined Site (which may include multiple or unique locations and non-contiguous land areas), or other factors.
 - 1. In such cases that Site availability limitations or restrictions are known, they will be defined herein, or otherwise within the Contract Documents.
 - 2. In cases that a Limited Notice to Proceed is issued and any site availability limitations are defined in accordance with SC-4.01.B.1, Owner nor Contractor shall have no grounds for claims of delay in Contractor's progress resulting therefrom.
 - 3. In cases that a Limited Notice to Proceed is issued resulting from changed conditions of the Site or the Progress Schedule or other factors, any claims by Owner or Contractor for delays in progress resulting therefrom shall be subject to the applicable provisions of the General Conditions."

4.02 Starting the Work

SC-4.02.B Add the following paragraph to new section 4.02.B:

"In a case that a Limited Notice to Proceed is issued, the Contractor shall start to perform only the Work at the Site specifically described in the Limited Notice to Proceed on the date defined therein."

4.04 Progress Schedule

SC-4.04.A.1 Add the following sentences at the end of the paragraph:

"The adjusted progress schedule shall show all changes occurring and work completed since the previous schedule update and shall reflect revised estimates of the duration of the various activities. The adjusted progress schedule shall be accompanied by a written report, prepared by the Contractor, which discusses and explains the updated schedules and any resulting problems and their solutions."

SC-4.04.A.3 Add the following paragraph to newly added section 4.04.A.3:

"After receipt of an adjusted progress schedule, the Engineer shall review the schedule and provide any written comments to the Contractor. If the Engineer's comments require a resubmittal of the schedule, the Contractor shall comply within seven (7) calendar days of receipt of the Engineer's comments."

ARTICLE 5 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS: HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 Availability of Lands

SC-5.01 Amend Paragraph 5.01.C to read as follows:

"Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment. The Contractor is hereby granted by Owner limited usage rights to specific lands owned by the Owner and those specific usage rights and specific lands are described in detail on "Exhibit 40 00 04 – Contractor Use Areas". If the Contract Documents do not include "Exhibit 40 00 04 – Contractor Use Areas", then no specific rights are granted to the Contractor."

5.03 Subsurface and Physical Conditions

SC-5.03.E Add the following new section immediately after section 5.03.D with the following text:

"The following table lists the reports of explorations and tests of subsurface conditions, including drawings of existing physical 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 (NAME)	REPORT DATE	REPORT PREPARED BY
Not Used	Not Applicable	Not Applicable

5.06 Hazardous Environmental Conditions at Site

SC-5.03.E Add the following new paragraphs immediately after section 5.06.A.3 with the following text:

"4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely: No such reports.

REPORT TITLE (NAME)	REPORT DATE	REPORT PREPARED BY
Not Used	Not Applicable	Not Applicable

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely: No such drawings.

REPORT TITLE (NAME)	REPORT DATE	REPORT PREPARED BY
Not Used	Not Applicable	Not Applicable"

ARTICLE 6 – BONDS AND INSURANCE

6.01 Performance, Payments, and Other Bonds

SC-6.01.B Replace section 6.01.B with the following text:

"Bonds furnished by the Contractor shall be in the forms prescribed by law or regulation or by the Contract Documents and shall be executed by such sureties which are approved by the Indiana Insurance Commission. The Contractor shall furnish the following bonds in addition to any bonds required elsewhere in the Contract Documents:

- a) Labor and Material Payment Bond in the amount of 100% of contract amount.
- b) Performance Bond in the amount of 100% of the contract amount.
- c) Maintenance (Warranty) Bond in the amount of 20% of the final contract amount in accordance with Section 15.08 and covering the entire Correction Period as defined in section 15.08. The Contractor shall furnish the warranty bond in the form of EJCDC® C 612, Warranty Bond (2018), or otherwise in the form included in the Bidding Documents or as specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or Regulations. The Contractor shall deliver the fully executed warranty bond to Owner prior to or with the final application for payment."

6.02 Insurance – General/Provisions

- SC-6.02.A Delete the words "Owner and" from the paragraph.
- SC-6.02.B Delete the words "Owner or" from the first sentence.

6.03 Contractor's Insurance

SC-6.03.A Amend this paragraph to read as follows:

"Required Insurance: Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, Contractual Liability Insurance, and Automobile Insurance."

SC-6.04.D Add the following new text under new section "6.04.D":

"Contractor's Commercial General Liability Policy and Automobile Liability Policy shall include by endorsement as Additional Insured's the following:

- a) Owner: Town of Long Beach, Indiana and its Officers
- b) Engineer: Haas & Associates, LLC"
- SC-6.03.E Add the following text under new section 6.03.E:

"Workers' Compensation and Employer's Liability: Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

Worker's Compensation and Related Policies	Policy Limits of Not Less Than
State	Statutory
Employer's Liability	\$100,000.00"

SC-6.03.F Add the following text under new section 6.03.F:

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

- 1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
- 2. damages insured by reasonably available personal injury liability coverage, and
- 3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom."
- SC-6.03.G Add the following text under new section 6.03.G:

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

- 1. Products and completed operations coverage.
 - a. Such insurance must be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
- 2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
- 3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
- 4. Underground, explosion, and collapse coverage.
- 5. Personal injury coverage.
- 6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
- 7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 "Additional Insured-Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent."
- SC-6.03.H Add the following text under new section 6.03.H:

"Commercial General Liability–Excluded Content: The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:

- 1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
- 2. Any exclusion for water intrusion or water damage.
- 3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
- 4. Any exclusion of coverage relating to earth subsidence or movement.
- 5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).
- 6. Any limitation or exclusion based on the nature of Contractor's work.
- 7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79."

SC-6.03.1 Add the following text under new section 6.03.1:

"Commercial General Liability - Minimum Policy Limits

Commercial General Liability	Policy Limits of Not Less Than
Personal Injury – Each Occurrence	\$2,000,000.00
Personal Injury – Annual Aggregate	\$5,000,000.00
Property Damage – Each Occurrence	\$1,000,000.00
Property Damage – Combined Limit	\$2,000,000.00

SC-6.03.J Add the following text under new section 6.03.J:

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

Automobile Liability	Policy Limits of Not Less Than
Automobile Liability – Combined Single Limit	\$500,000.00"

- SC-6.04 Delete Paragraphs 6.04.B and 6.04.C in their entirety and insert the following in their place:
 - B. [Not used.]
 - C. [Not used.]
- SC-6.04 Supplement Paragraph 6.04 of the General Conditions with the following provisions:
 - F. Builder's Risk Requirements: The builder's risk insurance must:
 - be written on a builder's risk "all risk" policy form that at a minimum includes insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment stored and in transit, and must not exclude the coverage of the following risks: fire; windstorm; hail; flood; earthquake and other earth movement; lightning; riot; civil

commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; and water damage (other than that caused by flood).

- a. Such policy will include an exception that results in coverage for ensuing losses from physical damage or loss with respect to any defective workmanship, methods, design, or materials exclusions.
- b. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake, volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance will be provided through other insurance policies acceptable to Owner and Contractor.
- 2. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
- 3. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of contractors, engineers, and architects).
- 4. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
- 5. extend to cover damage or loss to insured property while in transit.
- 6. allow for the waiver of the insurer's subrogation rights, as set forth in this Contract.
- 7. allow for partial occupancy or use by Owner by endorsement, and without cancellation or lapse of coverage.
- 8. include performance/hot testing and start-up, if applicable.
- 9. be maintained in effect until the Work is complete, in accordance with the Standard General Conditions of the Construction Contract, or until written confirmation of Owner's procurement of property insurance following Substantial Completion, whichever occurs first.
- 10 include as named insureds the Owner, Contractor, Subcontractors (of every tier), and any other individuals or entities required by this Contract to be insured under such builder's risk policy. For purposes of Paragraphs 6.04, 6.05, and 6.06 of the General Conditions, and this and all other corresponding Supplementary Conditions, the parties required to be insured will be referred to collectively as "insureds." In addition to Owner, Contractor, and Subcontractors of every tier, include as insureds the following:
 - a. Engineer

ARTICLE 7 - CONTRACTOR'S RESPONSIBILITIES

7.02 Supervision and Superintendence

SC-7.02.C Add the following new paragraph immediately after Paragraph 7.03.C:

"The Resident Superintendent is the Contractor's representative who is responsible for the dayto-day operation of the construction site. The Contractor shall name the Resident Superintendent in writing at the Preconstruction Conference. The Resident Superintendent may also serve as the Contractor's designated "Authorized Representative" as is described elsewhere in the Contract Documents."

7.03 Labor; Working Hours

- SC-7.03.B Add the following new paragraph immediately after paragraph 7.03.C:
 - "1. Regular working hours will be **7 am-6 pm, Monday-Friday,** unless OWNER, in writing, approves additional days/hours."

7.10 Taxes

- SC-7.10.B Add a new section immediately after Paragraph 7.10.A with the following text:
 - "B. Owner is exempt from payment of sales and compensating use taxes of the State of Indiana and of cities and counties thereof on all materials to be incorporated into the Work.
 - 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. Contractor shall obtain a Registered Retail Merchant Certificate number from the Indiana Department of State Revenue, and Contractor shall place said number on invoices for materials incorporated in the work.
 - 3. Owner's exemption does not apply to construction tools, machinery, equipment, supplies, material, or other property purchased by or leased by Contractor for Contractor's aid that are not expressly required by the Contract Documents."

7.16 Shop Drawings, Samples, and Other Submittals

SC-7.16.B.1.a Replace section 7.16.B.1.a with the following section and text:

"The Contractor shall submit one (1) complete, digital copy of each Shop Drawing. The Contractor shall submit as many as three (3) hard copies of each Shop Drawing at the discretion of the Engineer."

SC-7.16.B.1.c Add new section 7.16.B.1.c immediately after section 7.16.B.1.b with the following text:

"Each unique Shop Drawing and Sample item submitted to the Engineer as a Submittal shall be given a unique Submittal Title such as "Castings", "Structures", "SDR 26 Sanitary Fittings", "SDR 26 Sanitary Pipe", "A-2000 Storm Pipe", "Silt Fence", etc. that clearly describes the unique items to be reviewed in the Submittal and shall also each be assigned by the Contractor a unique Identifying Number (Submittal ID) starting with the number one (1) for the first Submittal which shall increase by one (1) for each new, unique, subsequent Submittal. A new Submittal ID shall not be assigned to Submittals that are being resubmitted. Each Submittal shall include only unique item(s) for review and no individual Submittal shall include multiple distinctly different types of items within it. For example, a Submittal cannot include both "Precast Concrete Structures" and "Water Main Pipes" as SUPPLEMENTARY CONDITIONS SECTION 10 03

those two items are distinctly different.

Each Submittal shall be accompanied by a Cover Sheet that contains at least the following information: Submittal Title; Submittal ID; Date of Submittal; Project/Contract Name; Total Pages of Submittal (including Cover Sheet); Contractor's Name & contact information; and A detailed written description of any variations that the Submittal may have from the requirements of the Contract Documents."

SC-7.16.B.2.a Replace this section with the following text:

"Unless otherwise required, a minimum of two (2) samples for each unique item being sampled shall be submitted to the Engineer for the Engineer's use."

SC-7.16.C.9 Add the following sentences to new section 7.16.C.9:

"The Engineer's review of shop drawings and samples is for the purpose of determining the quality, and general arrangement of materials proposed to be supplied by the Contractor. The Engineer's review does not necessarily include review of quantities or dimensions, or compatibility with other work."

SC-7.16.C.10 Add the following sentences to new section 7.16.C.10:

"After the Engineer has completed review of a given Submittal, the Engineer shall clearly indicate the review status of the Submittal by affixing a stamp that describes the current review status (approved, rejected, resubmit, etc.) and shall initial or sign the Cover Sheet of the Submittal and return the Submittal to the Contractor. Should the reviewed Submittal returned to the Contractor indicate the need for corrections or modifications and resubmittal, the Contractor shall make any such corrections or modifications in a timely fashion and resubmit the Submittal to the Engineer for further review."

SC-7.16.C.11 Add the following sentences to new section 7.16.C.11:

"Any Work performed by the Contractor prior to or without the Engineer's review and approval shall be at the risk, expense, and responsibility of the Contractor."

ARTICLE 10 - ENGINEER'S STATUS DURING CONSTRUCTION

10.03 Resident Project Representative

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

- "C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:
 - 1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor's safety meetings), and as appropriate prepare and circulate copies of minutes thereof.
 - 2. *Safety Compliance:* Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.

- 3. Liaison
 - a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's operations on the Site.
 - c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.
- 4. Review of Work; Defective Work
 - a. Conduct observations of the Work on the Site to assist Engineer in determining, to the extent set forth in Paragraph 10.02 of the General Conditions, if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Observe whether any Work in place appears to be defective.
 - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.
- 5. Inspections and Tests
 - a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.
 - b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
- 6. *Payment Requests:* Review Applications for Payment with Contractor.
- 7. Completion
 - a. Participate in Engineer's visits regarding Substantial Completion.
 - b. Assist in the preparation of a punch list of items to be completed or corrected.
 - c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
 - d. Observe whether items on the final punch list have been completed or corrected."

10.03 Resident Project Representative

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

- "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 THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 Cost of the Work

SC-13.01 Supplement Paragraph 13.01.B.5.c.(2) by adding the following sentence:

"The equipment rental rate book that governs the included costs for the rental of machinery and equipment owned by Contractor (or a related entity) under the Cost of the Work provisions of this Contract is the most current edition of **the "Rental Rate Blue Book for Construction Equipment," the "AED Green Book: Rental Rates & Specifications for Construction Equipment," or other commonly used rental rate book approved by Owner.** "

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

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

13.03 Unit Price Work

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

"E. Adjustments in Unit Price

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:

- a. the extended price of a particular item of Unit Price Work amounts to ten percent (10%) 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 ten percent (10%) 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:
 - a. all units of that item, in cases of contract quantity deductions; or
 - b. only those unit quantities exceeding one-hundred ten percent (110%) of the contract quantity, in cases of contract quantity additions. "

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

15.01 Progress Payments

SC-15.01.D Delete Paragraph 15.01.D in its entirety and insert the following in its place:

"Payment Becomes Due

- 1. Subject to Contractor's timely and complete submittal, thirty (30) 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 approved for payment, by Owner to Contractor, at the Owner's soonest there-after regularly scheduled public meeting.
 - a. A timely and complete submittal is defined as a Contractor's Application for Payment that is:
 - 1) submitted in accordance with the submission deadline requirements set forth in 15.01.B of the General Conditions; and
 - 2) that is complete, accurate and fully in accordance with all the requirements of the Contract Documents, such that the Engineer may make a recommendation of payment to the Owner consistent with 15.01.C of the General Conditions; and
 - 3) that in cases when Engineer refuses to recommend payment consistent with 15.01.C of the General Conditions, Contractor makes all necessary corrections prescribed by Engineer and resubmits within the original submission deadline requirements as set forth in 15.01.B. of the General Conditions.

b. Owner shall act in good faith to advance any Engineer-approved Application for Payment to the Owner's public payment docket with expedience, however Contractor's failure to submit and/or resubmit a timely and complete Application for Payment submittal may result in a delay of the payment date to the next subsequent regularly scheduled monthly public Owner's meeting due to Owner's legal and administrative requirements for its meetings.

15.06 Final Payment

SC-15.06.E Amend the terms "within 30 days" in the last sentence of Paragraph 15.06.E to: "within 60 days"

15.08 Correction Period

- SC-15.08.G Add the following new paragraph 15.08.G:
 - "G. The Correction Period is hereby established as a two (2) year period starting on the date of Substantial Completion."

ARTICLE 17 - FINAL RESOLUTION OF DISPUTES

17.01 Methods and Procedures

17.01.B Replace sections 17.01.B.1, 2, and 3 with the following sentence: Any unresolved disputes between the Owner and Contractor shall be resolved by litigation.

STOPS 17 & 18 DRAINAGE IMPROVEMENT PROJECT LONG BEACH, IN **OWNER: TOWN OF LONG BEACH, INDIANA**

THE PROJECT ENTAILS THE IMPROVEMENT OF STORM DRAINAGE SYSTEM BETWEEN STOP 17 AND STOP 18, ALONG LAKE SHORE DRIVE. THIS WILL BE ACHIEVED BY THE INSTALLATION OF CATCH BASINS, STORM SEWERS, DRYWELLS, AND OUTFALL STRUCTURE, ALL WITHIN TOWN OF LONG BEACH R.O.W.

PROJECT DESCRIPTION



PROJECT LOCATION MAP



SHEET LIST TABLE		
Sheet Number	Sheet Title	
C-00	COVER SHEET	
C-01	GENERAL INFORMATION	
C-02	PLAN & PROFILE 1	
C-03	PLAN & PROFILE 2	
C-04	DETAILS	
C-05	DETAILS 2	
C-06	EROSION CONTROL DETAILS	

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STOPS 17 & 18 DRAINAGE IMPROVEMENT	LOJORA	Owner: TOWN OF LONG BEACH, INDIANA Location: LONG BEACH, IN
REVISIONS		
DATE ISSU	ED:	DRAWN BY
2023.((PLOTTED:)8.08 8.8.2023)	SNO
SHEET TIT	LE	

COVER SHEET

C-00

SHEET NO.

GENERAL NOTES FOR DRAWINGS

GENERAL

- THE PHRASE "PROJECT LIMITS" AS REFERENCED HERE IN THESE DRAWINGS OR IN OTHER CONTRACT DOCUMENTS SHALL BE TAKEN TO MEAN "SITE" AS IS DEFINED IN THE STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT.
- THE BASE "PROJECT LIMITS" IS SHOWN ON SHEETS AS A LINE WITH LINETYPE "LIM". THE CONTRACTOR SHALL NOT TRESPASS ON REAL ESTATE OUTSIDE OF THE PROJECT LIMITS UNLESS WRITTEN AUTHORIZATION FROM THE RESPECTIVE REAL ESTATE OWNER HAS BEEN PROVIDED TO THE CONTRACTOR OR THE CONTRACTOR POSSESSES OTHER LEGAL RIGHTS TO DO SO.
- THE CONTRACTOR SHALL KEEP AN "AS BUILT" SET OF RECORD DRAWINGS THAT SHOW ANY CONSTRUCTED DEVIATIONS FROM WHAT IS SHOWN ON THESE DRAWINGS.
- 4. THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL PROPERTIES ADJOINING THE PROJECT SITE AT ALL TIMES DURING THE CONSTRUCTION OF THIS PROJECT, EXCEPT FOR PERIODS OF SHORT DURATION (4 HOURS OR LESS).
- THE TOPOGRAPHIC SURVEY FOR THIS PROJECT WAS PREPARED BY HAAS AND ASSOCIATES, LLC ("H&A"). THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND SHALL IMMEDIATELY NOTIFY H&A IN WRITING OF ANY DIFFERING CONDITIONS. OBJECTS INCLUDING BUT NOT LIMITED TO BUILDING FOOTPRINTS AND UTILITIES THAT ARE SHOWN ON PRIVATELY-OWNED LAND HAVE NOT NECESSARILY BEEN SURVEYED AND SHOULD BE CONSIDERED APPROXIMATE OR OBSOLETE. THE SURVEY DATUM FOR ALL DATA SHOWN ON THESE DRAWINGS ARE AS FOLLOWS: HORIZONTAL – NORTH AMERICAN DATUM OF 1983 ("NAD83"), VERTICAL – NORTH AMERICAN VERTICAL DATUM OF 1988 ("NAVD 88"). BENCHMARKS SHOWN IN THIS PLAN SET ARE FOR VERTICAL CONTROL ONLY AND HORIZONTAL COORDINATES FOR SUCH BENCHMARKS SHALL BE USED ONLY FOR LOCATING THE VICINITY IN WHICH THE BENCHMARKS ARE LOCATED AND NOT FOR ANY HORIZONTAL CONTROL PURPOSES.
- PRIOR TO THE COMMENCEMENT OF ANY "LAND DISTURBING ACTIVITY", MEANING "ANY MANMADE CHANGE OF THE LAND SURFACE, INCLUDING REMOVING VEGETATIVE COVER THAT EXPOSES THE UNDERLYING SOIL, EXCAVATING, FILLING, TRANSPORTING, AND GRADING", THE CONTRACTOR SHALL ENSURE THAT ALL REQUIRED EROSION CONTROL MEASURES ARE INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT'S CONSTRUCTION STORMWATER GENERAL PERMIT THAT WAS MADE EFFECTIVE ON DECEMBER 18, 2021 (SPECIFICALLY THE PERFORMANCE STANDARDS SECTION) AND THE EROSION CONTROL MEASURES ARE FULLY FUNCTIONING.

EXISTING CONDITIONS

- THE HORIZONTAL LOCATIONS OF UNDERGROUND UTILITIES SHOWN WITHIN THESE DRAWINGS ARE BASED ON INFORMATION PROVIDED BY PUBLIC AND PRIVATE UTILITY COMPANIES AS DEMARCATED ON THE GROUND SURFACE BY THE "INDIANA 811" NON-PROFIT ORGANIZATION FORMERLY KNOWN AS "INDIANA UNDERGROUND PLANT PROTECTION SERVICE" (IUPPS) AND LOCAL MUNICIPALITIES AS PRESCRIBED BY INDIANA CODE 8-1-26. THE ACCURACY AND COMPLETENESS OF THIS INFORMATION IS NOT GUARANTEED OR CERTIFIED BEYOND THE LEVEL WHICH IS DESCRIBED IN THE AFOREMENTIONED CODE. UNLESS SPECIFICALLY STATED OTHERWISE IN THESE DRAWINGS, ALL BURIED UTILITIES ARE SHOWN AT "APPROXIMATE LOCATIONS" AND ELEVATIONS ARE UNKNOWN AND TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO DIGGING. ELEVATIONS OF STORM STRUCTURES AND SEWERS THAT ARE NOT DIRECTLY IN CONFLICT WITH PROPOSED WORK HAVE NOT NECESSARILY BEEN ASCERTAINED.
- IN ACCORDANCE WITH INDIANA CODE 8-1-26, WHOEVER IS DIGGING IS SOLELY RESPONSIBLE FOR VERIFYING THE LOCATION, SIZE, DEPTH, ELEVATION, TYPE, AND ANY OTHER RELEVANT AND/OR DESIRED INFORMATION REGARDING ALL EXISTING BURIED UTILITIES PRIOR TO DIGGING AND FOR TAKING PRECAUTIONS TO PROTECT ALL UTILITIES LOCATED ON SITE. WHEN WORKING NEAR BURIED UTILITIES. THE CONTRACTOR SHALL EXPOSE THE UTILITY THROUGH ISOLATED DIGGING OR "POTHOLING" OPERATIONS TO FIRST VERIFY THE UTILITY'S PROPERTIES AND POSITION.
- IF ANY DISCREPANCIES REGARDING THE UTILITIES SHOWN IN THESE DRAWINGS ARE DISCOVERED, THE ENGINEER OF RECORD SHALL BE NOTIFIED IMMEDIATELY. . EXISTING WATER MAIN VALVES AND OTHER WATER UTILITY APPURTENANCES ARE TO BE OPERATED ONLY BY AUTHORIZED PERSONNEL OF THE OWNER OF THE WATER FACILITY. IF THE SERVICE IS TO BE DISRUPTED, 24 HOUR NOTICE SHALL BE GIVEN TO THOSE AFFECTED.
- ALL EXISTING BURIED UTILITIES AND OTHER STRUCTURES ARE TO REMAIN IN SERVICE AND UNDISTURBED UNLESS SPECIFICALLY NOTED OTHERWISE. ANY SUCH UTILITIES AND STRUCTURES DAMAGED DURING THE COURSE OF CONSTRUCTION ACTIVITIES SHALL BE REPAIRED AND/OR REPLACED BY THE CONTRACTOR - AT THE CONTRACTOR'S EXPENSE - AS NECESSARY TO RETURN THEM TO EXISTING CONDITION OR BETTER.
- ALL RELEVANT GEOTECHNICAL BORINGS AND PAVEMENT CORINGS HAVE REVEALED THE PRESENCE OF AN APPROXIMATELY 4.5 INCH 7.5 INCH THICK LAYER OF CONCRETE ROADWAY LOCATED BENEATH THE VISIBLE HMA PAVEMENT SURFACE OF LAKE SHORE DRIVE. THESE DRAWINGS ANTICIPATE THE PRESENCE OF CONCRETE ROADWAY UNDER HMA PAVEMENT ALL ALONG LAKE SHORE DRIVE. PAYMENT FOR THE REMOVAL OF CONCRETE UNDERNEATH PAVEMENT ON LAKE SHORE DRIVE SHALL NOT BE MADE, AND THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE TOTAL PROJECT COST. CONCRETE HAS BEEN FOUND UNDERNEATH NON-CONCRETE PARTS OF THE OFF-STREET AREAS WITHIN THE RIGHT OF WAY: HOWEVER, PAYMENT WILL BE MADE FOR THE REMOVAL OF CONCRETE DISCOVERED TO EXIST UNDER NON-CONCRETE MATERIALS LOCATED OUTSIDE THE EDGES OF THE PAVEMENT AND WITHIN THE RIGHT OF WAY. PAYMENT FOR THIS WORK WILL BE UNDER A SPECIFIC PAY ITEM.
- BUILDING FOOTPRINTS SHOWN ARE APPROXIMATE AND HAVE NOT BEEN SURVEYED. BUILDING FOOTPRINTS WERE GENERATED IN PART BY MICROSOFT CORPORATION USING 2018 AERIAL IMAGERY OR THE MOST UP TO DATE AERIAL IMAGERY AVAILABLE TO MICROSOFT AT THE TIME OF GENERATION. THESE DRAWINGS MAKE NO PROMISES EITHER EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF BUILDING FOOTPRINTS SHOWN. WETLANDS ARE NOT KNOWN TO EXIST ON THE SITE.
- 9. IN SOME SITUATIONS, PORTIONS OF OR ENTIRE PRIVATELY-OWNED SEPTIC SYSTEMS EXIST WITHIN THE PUBLIC RIGHT OF WAY. EXACT LOCATIONS OF THESE SEPTIC SYSTEMS ARE NOT KNOWN. IF THE CONTRACTOR DAMAGES ANY EXISTING SEPTIC SYSTEMS, THE CONTRACTOR SHALL REPAIR, REPLACE, OR OTHERWISE ENSURE THAT THE DAMAGED EXISTING SEPTIC SYSTEM IS RETURNED TO ITS ORIGINAL CONDITION AND ENSURE THE SYSTEM IS FUNCTIONAL AT THE CONTRACTOR'S OWN COST.

DEMOLITION

- THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL EXISTING ITEMS WITHIN THE PROJECT LIMITS THAT ARE IN CONFLICT WITH THE PROPOSED WORK. REMOVAL OF THOSE ITEMS SHALL BE PAID FOR UNDER INDIVIDUAL PAY ITEMS, IF ANY, OR UNDER THE "CLEARING RIGHT-OF-WAY" ITEM.
- 2. ALL EXISTING MAILBOXES, MAILBOX ASSEMBLIES, AND STREET SIGNAGE SHALL BE REMOVED AND RESET, UNLESS OTHERWISE NOTED, WHEN IN CONFLICT WITH THE PROPOSED WORK. 3. ALL DISTURBED AREAS SHALL BE RESTORED USING THE GUIDELINE BELOW:
- 3.1. ASPHALT, BRICK AND GRAVEL SURFACES SHALL BE RESTORED WITH ASPHALT IN ACCORDANCE WITH [STANDARD ASPHALT PAVEMENT SECTION DETAIL]
- 3.2. CONCRETE PAVEMENT SHALL BE RESTORED WITH CONCRETE IN ACCORDANCE WITH [CONCRETE PAVEMENT DETAIL]. 3.3. LANDSCAPING AND LAWNS SHALL BE RESTORED WITH LAWNS IN ACCORDANCE WITH THE [LAWN RESTORATION DETAIL]
- 4. WHEN REMOVING EXISTING ASPHALT PAVEMENT, THE CONTRACTOR SHALL SAW CUT A CLEAN EDGE INTO THE PAVEMENT AND MAINTAIN A STRAIGHT, CLEAN EDGE THROUGHOUT CONSTRUCTION. SEE [ASPHALT PAVEMENT SECTION DETAIL].
- THE CONTRACTOR SHALL PROTECT ALL TREES, SHRUBS, RETAINING WALLS, FENCE POLES, TOP SOIL, GRASS, SURFACE STRUCTURES, AND OTHER PROPERTY THAT IS STATED TO REMAIN OF THAT IS NOT IN CONFLICT WITH PROPOSED WORK SHOWN IN THE DRAWINGS. ALSO, THE CONTRACTOR SHALL TAKE SPECIAL CARE EFFORTS TO PROTECT EXISTING SURFACES ADJACENT TO WORK AREAS FROM BEING DAMAGED BY CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO DRIVEWAYS, PARKING AREAS, AND LANDSCAPED AREAS. THESE EFFORTS INCLUDE, BUT ARE NOT LIMITED TO, THE USE OF RUBBER TIRED EQUIPMENT, PROTECTIVE STEEL PLATES, AND FULL DEPTH SAW CUTS BEFORE DEMOLITION/REMOVAL OF PAVEMENT. ANY SUCH PROPERTY THAT IS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE, AND NO DIRECT PAYMENT FOR THESE EFFORTS WILL BE MADE.
- THE CONTRACTOR SHALL ABIDE BY THE REQUIREMENTS SET FORTH IN THE TOWN OF LONG BEACH'S ORDINANCE NUMBER 2021-09 WITH RESPECT TO THE REMOVAL OF TREES. THIS PROJECT REQUIRES THAT MULTIPLE TREES BE REMOVED, AND IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO SECURE ANY NECESSARY PERMITS FROM THE TOWN OF LONG BEACH TO COMPLETE THIS WORK IN A TIMELY MANNER THAT DOES NOT DELAY THE CONTRACTOR OR THE PROJECT. THE CONTRACTOR SHALL NOT COMMENCE TREE DEMOLITION UNTIL RECEIVING WRITTEN APPROVAL FROM THE ENGINEER FIRST.

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- NO WORK SHALL BE COMPLETED OUTSIDE OF THE PROJECT LIMITS UNLESS SPECIFICALLY STATED OTHERWISE.
- ALL PROPOSED WORK SHALL MATCH EXISTING GRADE AT PROPERTY AND PROJECT LIMITS UNLESS SPECIFICALLY NOTED OTHERWISE. NEW MATERIALS PLACED THAT ARE CONTIGUOUS WITH EXISTING MATERIALS SHALL MATCH EXISTING AND PROPOSED (WHERE PROVIDED) GRADES ALL ALONG THE CONTIGUOUS BOUNDARY.
- ALL EXISTING LAKE SHORE DRIVE GRADES AND ELEVATIONS SHALL BE PRESERVED WHEN RECONSTRUCTING LAKE SHORE DRIVE AND WHEN TRENCHING THROUGH LAKE SHORE DRIVE. IF TRENCHING OPERATIONS DISTURB EXISTING ROADWAY CROWN OR EDGE OF PAVEMENT ELEVATIONS, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE THE ROADWAY SUCH THAT THE EXISTING ROADWAY GRADES AND ELEVATIONS, INCLUDING THE CROWN AND EDGE OF PAVEMENT ELEVATIONS AND CONFIGURATIONS, ARE EFFECTIVELY RE-ESTABLISHED. SPECIAL CARE SHALL BE TAKEN BY THE CONTRACTOR TO ENSURE THAT THE EXISTING EDGES OF PAVEMENT ARE NOT DISTURBED BY TRENCHING OR OTHER OPERATIONS SUCH THAT MATCHING THOSE EXISTING ELEVATIONS THAT WERE LEFT UNDISTURBED IS FEASIBLE.
- THE TOPS OF ALL PROPOSED MANHOLES AND INLETS OR OTHER STRUCTURES SHALL BE CONSTRUCTED FLUSH WITH THE ADJACENT FINISHED SURFACES. ADDITIONALLY, ALL FRAMES ON EXISTING STRUCTURES ARE TO BE ADJUSTED AS NECESSARY TO MATCH FINAL GRADE AND THIS WORK SHALL BE PAID FOR BY THE RESPECTIVE ITEM IN THE SCHEDULE OF PAY ITEMS, IF ANY, OR BE PAID FOR AS PART OF OTHER ITEMS IF NO SUCH SPECIFIC ITEM EXISTS. ALL STRUCTURES WITH TYPE DESIGNATION "(IA)" SHALL RECEIVE INLET APRON. WHERE INLET APRONS ARE CALLED OUT, EDGE OF THE APRON SHALL FLUSH WITH THE ADJACENT FINISHED SURFACE, AND POSITIVE FLOW SHALL BE MAINTAINED FROM THE EDGE OF THE APRON TO THE INLET GRATE AS DEPICTED IN [INLET APRON DETAIL]. INLET APRON MATERIAL SHALL BE EITHER CONCRETE OR ASPHALT, CORRESPONDING WITH THE CONTIGUOUS EXISTING SURFACE OR SURFACE RESTORATION MATERIAL.
- THE CONTRACTOR SHALL PREVENT ANY AND ALL DEBRIS AND SEDIMENT FROM ENTERING THE STORM SEWER SYSTEM AND LEAVING THE PROJECT SITE BY INSTALLING TEMPORARY FILTERS AT ALL DRAINAGE STRUCTURES. DURING CONSTRUCTION OPERATIONS, IF ANY LOOSE MATERIAL IS DEPOSITED IN THE FLOW LINE OF DRAINAGE STRUCTURES SUCH THAT THE NATURAL FLOW OF WATER IS OBSTRUCTED. SAID MATERIAL SHALL BE REMOVED AT THE CLOSE OF EACH WORKING DAY. AT THE CONCLUSION OF CONSTRUCTION OPERATIONS, ALL DRAINAGE STRUCTURES SHALL BE FREE FROM DIRT AND DEBRIS. THE WORK SPECIFIED ABOVE WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE TOTAL CONTRACT COST.
- THE CONTRACTOR SHALL PROVIDE BARRICADES TO KEEP VEHICLES OFF OF NEW CONCRETE SURFACES FOR A MINIMUM OF SIX (6) FULL DAYS AFTER THE CONCRETE IS POURED AND FINISHED.
- ALL GRAVITY STORM SEWER PIPES SHALL BE PVC SDR 26, 160 PSI MINIMUM PRESSURE RATING AND ALL ASSOCIATED FITTINGS SHALL HAVE COMPRESSION TYPE JOINTS. MANHOLE CASTINGS (I.E., CAST IRON FRAME WITH COVER, LID, OR GRATE) HAVE SPECIFIC, PROPOSED LOCATIONS/ORIENTATIONS RELATIVE TO THE MANHOLES THAT ARE SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL NOT INSTALL MANHOLE CASTINGS IN AN ALTERNATE LOCATION/ORIENTATION WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER.
- ALL STRUCTURES WITHIN 8 FT OF WATER MAIN MUST BE COATED TO ELIMINATE CROSS CONTAMINATION OF WATER MAIN PER IAC 327 8-3.2-9. CATCH BASINS/INLETS WITH TYPE DESIGNATION "(WP)" SHALL RECEIVE MANHOLE WATERPROOFING IN ACCORDANCE WITH SPECIFICATION SECTION 33 06 00.
- 10. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL GRAVEL BASE MATERIAL THAT IS PART OF AN ASPHALT SECTION (WHETHER WITHIN THE ROADWAY OR NOT) THAT IS INSTALLED AND LEFT EXPOSED WITHOUT AN ASPHALT OVERLAY. AS VEHICLES AND THE ELEMENTS ERODE OR OTHERWISE DISTURB THÈSE EXPOSED BASE AGGREGATES, THE CONTRACTOR SHALL REPLACE AND/OR RESET THE BASE MATERIAL AND ENSURE ITS PROPER COMPACTION ALL AT THE CONTRACTOR'S EXPENSE. NO DIRECT PAYMENT SHALL BE MADE TO THE CONTRACTOR FOR THIS MAINTENANCE WORK, AND THE COST OF IT SHALL BE INCLUDED IN THE COST OF OTHER ITEMS.
- . ALL TRENCH SHIELDING, OF ALL HEIGHTS AND DEPTHS, AND OTHER "ADEQUATE PROTECTIVE SYSTEMS" NECESSARY FOR THE CONTRACTOR TO SATISFY OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REQUIREMENTS AND REGULATIONS SHALL NOT BE PAID FOR DIRECTLY AND SHALL BE CONSIDERED INCIDENTAL TO THE TOTAL PROJECT COST.

PLAN CONVENTIONS

- THE TYPICAL DRAFTING CONVENTION USED IN THESE DRAWINGS IS SUCH THAT ALL EXISTING CONDITIONS ARE SHOWN IN DASHED LINETYPE IN GRAYSCALE AND ALL PROPOSED WORK IS SHOWN IN CONTINUOUS LINETYPE IN BLACK; HOWEVER, THIS MAY NOT ALWAYS BE THE CASE, AND LABELING MAY BE USED TO CLARIFY ANY NON-CONFORMING DRAFTED ELEMENTS. BRACKETS '[]' TYPICALLY SIGNIFY A DIRECT REFERENCE TO SPECIFIC TEXT, SUCH AS A DETAIL NAME, LOCATED ELSEWHERE IN THE DRAWINGS.
- ALL PIPE LENGTHS SHOWN ARE FROM CENTER OF CONNECTED STRUCTURE TO CENTER OF CONNECTED STRUCTURE UNLESS SPECIFICALLY NOTED OTHERWISE.

UTILITY CONTACT INFORMATION

ELECTRIC Service Provider

Address:

Contact:

GAS

Address:

Contact:

Contact Phone:

Contact Email:

Service Provider

Contact Phone:

Contact Email:

Service Provider

Contact Phone:

Contact Email:

Service Provider:

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WATER

Address:

Contact:

WATER

Address:

Contact:

STORM SEWERS

Address:

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Contact:

SANITARY SEWERS

NIPSCO 1501 W. State Road 2 LaPorte, IN 46350 Tom Miltenberger 219-325-4211 TMMILTENBERGER@NISOURCE.COM

NIPSCO 801 East 86th Avenue Merrillville. IN 46410 Lisa Taylor 219-647-5311 LETAYLOR@NISOURCE.COM

Michigan City Sanitary District 1100 E. 8th Street Michigan City, IN 46360 Milorad Milatovic 219-874-7799 MMILATOVIC@MCSAN.ORG

Town of Long Beach Street Department 2400 Oriole Trail Long Beach, IN 46360 Tom Dolph 219-874-6616

Michigan City Department of Water Works 532 Franklin Street Michigan City, IN 46360 Christopher Johnsen 219-874-3228 CJOHNSEN@MCWATERDEPT.COM

Long Beach Water Department 2400 Oriole Trail, Suite 1 Long Beach, IN 46360 Greg Parrish 219-879-9353 WATERSUPER@LBPDIN.COM

Comcast North 16 W. 84th Drive Merrillville, IN 46410 Larry Smith 574-320-8203 LARRY_SMITH3@CABLE.COMCAST.COM

AT&T Distributions 302 S. East Street Crown Point, IN 46307 Diane Werner-Reynolds DW1282@ATT.COM

Acme Communications 5858 N. College Avenue Indianapolis, IN 46220 William Richey 219-879-6600 ext. 309



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SYMBOL DESC. GEOTECH_SOIL BORING MISC_BOLLARD MISC_CONCRETE WASHOUT STATION MISC_DRILL HOLE MISC FLAG POLE MISC_GUY WIRE **HHH** MISC HANDHOLE MISC_MAILBOX ■ PP#: | MISC POLE ELECTRIC (POWER) MISC_POLE_LIGHT MISC_POLE_STRAIN MISC_POLE_TELEPHONE MISC_POST MISC_RAILROAD SIGNAL MISC_ROCK MISC_SIGN MISC_TRACER WIRE BOX MISC_VAULT MISC_WELL ିଔ- ∣MISC_YARD LIGHT SURVEY_BOUNDARY_FOUND IRON PIPE SURVEY_BOUNDARY_FOUND IRON ROD SURVEY BOUNDARY MAG NAIL SURVEY BOUNDARY SURVEYOR CAP (A) SURVEY CONTROL BENCHMARK SURVEY CONTROL CONTROL POINT SURVEY CONTROL MARKER NAIL UTILITY_COMMUNICATIONS_CABINET DITILITY GAS METER UTILITY GAS VALVE UTILITY SANITARY GAS VENT **(S)** UTILITY SANITARY MANHOLE UTILITY SANITARY VALVE UTILITY_SANITARY_VALVE BOX UTILITY_STORM_MANHOLE UTILITY_TELEPHONE_MANHOLE UTILITY TELEPHONE RISER BOX UTILITY TRAFFIC SIGNAL MANHOLE UTILITY UNKNOWN MANHOLE UTILITY WATER HYDRANT UTILITY_WATER_IRRIGATION HEAD UTILITY_WATER_METER (D) UTILITY_WATER_SHUTOFF UTILITY WATER VALVE VEGETATION_BUSH/SHRUB VEGETATION_HEDGE VEGETATION_TREE STUMP VEGETATION_TREE_CONIFEROUS VEGETATION_TREE_DECIDUOUS —— E ____ |

	VEGETATION_TREE_DECIDUOUS_CLUSTER		
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	-LIM	BOUNDARY, PROJECT LIMITS	
	- PL	BOUNDARY, PROPERTY LINE	
	- ROW	BOUNDARY, RIGHT OF WAY	
~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	TOPO, EDGE OF FOREST	
	-EP	TOPO, EDGE OF PAVEMENT	
X	X	TOPO, FENCE, CHAIN LINK	
	•	TOPO, FENCE, WOODEN	
	—SF ———	TOPO, SILT FENCE	
	— E ———	UTILITY, ELECTRIC	
	- FO	UTILITY, FIBER OPTIC	
	GAS 4in ———	UTILITY, GAS MAIN w/ SIZE IN INCH	
	OHL	UTILITY, OVERHEAD LINE(S)	
	- FM	UTILITY, SANITARY FORCE MAIN	
—SL	SL	UTILITY, SANITARY LATERAL	
	SAN	UTILITY, SANITARY SEWER	
	- STM	UTILITY, STORM SEWER	
	TELE	UTILITY, TELEPHONE LINE	
	W 6in ———	UTILITY, WATER MAIN w/ SIZE IN INCH	
		OTHER NEAT-LINE SUBEACE	

REPLACEMENT LIMITS

## ABBR

ABBREVIATION
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OHL P PC PCC PI PI
OHL P PC PCC PI PL PP
OHL P PC PCC PI PL PL PP PRC
OHL P PC PCC PI PL PL PP PRC PROP

FULL TEXT
GREEK LETTER DELTA = DIFFERENCE / CHANGE DEGREE
AMERICANS WITH DISABILITY ACT
FEET
ADJUST AGGREGATE
AGGREGATE ASPHALT
APROXIMATE WATER CENTER LINE ELEVATION
BUILDING BENCHMARK
BACK OF CURB BACK OF SIDEWALK
BEGINNING POINT
GRADE BREAK
BEGINNING OF VERTICAL CURVE ELEVATION BEGINNING OF VERTICAL CURVE STATION
CURB AND GUTTER
CROWN ELEVATION
CENTERLINE
CLEAN OUT CONCRETE
DAYLIGHT GRADING (EG ELEV = FG ELEV)
DUCTILE IRON DIAMETER
DUCTIL IRON PIPE DITCH BOTTOM
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POINT OF REVERSE CURVATURE

PROPOSED

POINT OF TANGENCY

ABBRE	VIATIONS (CONT'D)
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS OR RIGHT
RCP	REINFORCED CONCRETE PIPE
REQ'D	REQUIRED
RGM	RELOCATED GAS MAIN
RMJ(S)	RESTRAINED MECHANICAL JOINT(S)
ROW	RIGHT-OF-WAY
RW	RETAINING WALL
RW-RC	RETAINING WALL - REINFORCED CONCRETE
RW-SE	RETAINING WALL - SEGMENTAL
RW-ST	RETAINING WALL - STONE
RW-W	RETAINING WALL - WOODEN
SAN	SANITARY
SCH	SCHEDULE
SDR	STANDARD DIMENSION RATIO
SF	SQUARE FOOT
STA	STATION
STM	STORM
STR	STRUCTURE
SW	SIDEWALK
SY	SQUARE YARD
ТВМ	TEMPORARY BENCHMARK
TPE	TOP OF PIPE ELEVATION
TYP	TYPICAL
W/	WITH
W/O	WITHOUT
WCLE	WATER CENTER LINE ELEVATION
WM	WATER METER
WV	WATER VALVE
XS	CROSS SECTION

# NSULTING ENGINEERS www.HaasLLC.com 526 Franklin Street Michigan City, IN 46360 Phone: 219-872-9407 CERTIFICATION 12000463 ----STATE OF ANDIAN' ...SIONAL PROJECT NAME, OWNER, & LOCATION Z IUDI HC Щ m

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r: SAM OZEH August 8, 202 3336 Stop 17



STRUCTURE NAME	STRUCTURE DETAILS	PIPE DETAILS
STRUCTURE - (1)	STA. 0+02.76, 0.00' L, LINE '1' N:2,364,733.49, E:3,011,469.88 I.D.: 48", RIM = 599.67, SUMP = 597.50	INV OUT = 597.50 (10" DIP)(NW)
STRUCTURE - (2)	STA. 0+27.36, 0.00' , LINE '1' N:2,364,754.95, E:3,011,457.86 I.D.: 48", RIM = 600.07, SUMP = 597.25	INV IN = 597.25 (10" DIP)(SE) INV OUT = 597.25 (12" PVC PIPE)(NE)
STRUCTURE - (3)	STA. 1+25.84, 0.03' R, LINE '1' N:2,364,810.33, E:3,011,539.28 I.D.: 48", RIM = 600.35, SUMP = 596.26	INV IN = 596.76 (12" PVC PIPE)(SW) INV IN = 597.01 (10" DIP)(S) INV OUT = 596.76 (18" PVC PIPE)(NE)
STRUCTURE - (4)	STA. 3+15.33, 0.00' , LINE '1' N:2,364,915.54, E:3,011,696.89 I.D.: 48", RIM = 600.36, SUMP = 595.31	INV IN = 595.81 (18" PVC PIPE)(SW) INV IN = 597.12 (10" DIP)(SE) INV OUT = 595.81 (18" PVC PIPE)(NE)
STRUCTURE - (5):	STA. 5+22.66, 0.01' L, LINE '1' N:2,365,029.16, E:3,011,867.35 I.D.: 120", RIM = 600.68, SUMP = 592.74	INV IN = 594.78 (18" PVC PIPE)(SW) INV IN = 596.79 (10" DIP)(SE) INV OUT = 593.76 (18" PVC PIPE)(NW)
STRUCTURE - (6)	STA. 1+18.21, 28.61' R, LINE '1' N:2,364,782.42, E:3,011,549.05 I.D.: 48", RIM = 599.96, SUMP = 597.60	INV OUT = 597.60 (10" DIP)(N)
STRUCTURE - (7)	STA. 3+15.16, 24.01' R, LINE '1' N:2,364,895.48, E:3,011,710.07 I.D.: 48", RIM = 600.73, SUMP = 597.60	INV OUT = 597.60 (10" DIP)(NW)
STRUCTURE - (8)	STA. 0+05.38, 0.03' L, LINE '2' N:2,364,968.48, E:3,011,819.78 I.D.: 48", RIM = 600.64, SUMP = 598.00	INV OUT = 598.00 (10" DIP)(NE)
STRUCTURE - (9)	STA. 0+77.80, 0.00' , LINE '2' N:2,365,008.22, E:3,011,880.32 I.D.: 48", RIM = 600.94, SUMP = 597.25	INV IN = 597.28 (10" DIP)(SW) INV OUT = 597.28 (10" DIP)(NW)
STRUCTURE - (10)	STA. 5+90.50, 0.00', LINE '1' N:2,365,087.05, E:3,011,831.98 I.D.: 72", RIM = 594.58, SUMP = 590.29	INV IN = 591.25 (18" PVC PIPE)(SE) INV OUT = 590.79 (18" HDPE PIPE)(NV

<b>CONTROL POINT &amp; BENCHMARK DATA TABLE</b>					
POINT #	DESCRIPTION	ELEVATION	NORTHING	EASTING	
1	CP A EX MAG	601.41	2,365,026.87	3,011,856.73	
2	CP B EX MAG WEIGHTED AVERAGE	600.94	2,364,892.00	3,011,701.42	
3	CP C	594.35	2,365,118.96	3,011,805.03	
4	TBM 1	604.15	2,364,978.65	3,011,860.37	



















PURPOSE: TO RETAIN SEDIMENT FROM SMALL SLOPING DISTURBED AREAS BY REDUCING THE VELOCITY OF SHEET FLOW. REQUIREMENTS • TRENCH: 8" MINIMUM DEPTH, FLAT BOTTOM OR V-SHAPED, FILLED WITH COMPACTED SOIL OR GRAVEL TO BURY LOWER PORTION OF SUPPORT WIRE AND/OR FENCE FABRIC SUPPORT POSTS: 2" X 2" HARDWOOD POSTS SET AT LEAST 1 FOOT DEEP. SPACING OF POSTS: 8 FOOT MAXIMUM IF FENCE SUPPORTED BY WIRE, OTHERWISE 6 FOOT PER EXTRA-STRENGTH FABRIC WITHOUT WIRE BACKING FENCE HEIGHT A 3 FEET MINIMUM OB HIGH ENOUGH SO DEPTH OF IMPOUNDED WATER DOES NOT FENCE FABRIC: WOVEN OR NON-WOVEN GEOTEXTILE FABRIC WITH SPECIFIED FILTERING EFFICIENCY INSTALLATION ALONG THE ENTIRE INTENDED FENCE LINE, MAINTAIN CONTOUR AS MUCH AS POSSIBLE, DIG AN 8"



FROSION CONTROL PLAN LEGEND -----► PROPERTY LINE/ DRAINAGE SWALE - ---- Existing Drainag AREA TO BE TOP-SOILED, SEEDED, AND MULCHED BY OWNER AT COMPLETION OF CONSTRUCTION. FINISHED DRAINA TREE CONSERVATION HOUSE GARAGE (SF) SILT FENCING GRAVEL ENTRANCE/ EXIT PAD CURB INLET PROTECTION DROP INLET PROTECTION STREE CURB INLET PROTECTION EXISTING CURB AND GUTTER SOIL SALVAGE AND UTILIZATION NOTES: 1. EROSION/SEDIMENT CONTROL MEASURES MUST BE FUNCTIONAL AND BE MAINTAINED THROUGHOUT CONSTRUCTION. 2. MAINTAIN POSITIVE DRAINAGE AWAY FROM STRUCTURE(S). PS PERMANENT SEEDING

> SAMPLE EROSION/SEDIMENT CONTROL PRACTICE PLAN FOR A TYPICAL ONE- OR TWO-FAMILY DWELLING UNDER CONSTRUCTION

- SPECIFICATION "SECTION 205 STORMWATER MANAGEMENT", THE MORE STRINGENT, CONSERVATIVE (IN TERMS OF PREVENTING EROSION) MEASURES SHALL 2. ALL STORMWATER MANAGEMENT AND EROSION CONTROL MEASURES CALLED FOR IN THE PLANS AND SPECIFICATIONS SHALL ALSO BE IN ACCORDANCE WITH THE

GENERAL SHEET NOTES 1. IN CASE OF A DISCREPANCY BETWEEN THE DETAILS AND REQUIREMENTS SHOWN HEREIN AND THE DETAILS AND REQUIREMENTS CONTAINED WITHIN

# SILT FENCE DETAIL

- TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEAN OUT. AFTER WATERSHED HAS BEEN STABILIZED, REMOVE FENCE AND SEDIMENT DEPOSITS, BRING THE DISTURBED AREA TO GRADE AND STABILIZE.
- REMOVE DEPOSITED SEDIMENT WHEN IT REACHES HALF THE HEIGHT OF THE FENCE AT ITS LOWEST POINT OR IS CAUSING THE FABRIC TO BULGE.
- AFFECTED PORTION
- MAINTENANCE INSPECT SILT FENCE PERIODICALLY AND AFTER EACH STORM EVENT. IF FENCE FABRIC TEARS, STARTS TO DECOMPOSE, OR BECOMES INEFFECTIVE, REPLACE THE

- 5. PLACE THE BOTTOM 1' OF FABRIC IN THE 8" DEEP TRENCH, EXTENDING THE REMAINING 4" OF FABRIC

TOWARD THE UP SLOPE SIDE. BACKFILL THE TRENCH WITH COMPACTED EARTH

EXCEED 1.5 FEET AT ANY POINT ALONG FENCE LINE.

MINIMUM LIFE AT TEMPERATURES 9-120 DEGREES F

DEEP FLAT BOTTOM OR V-SHAPED TRENCH.

STANDARD-STRENGTH FABRIC.)

BACKFILL MIN 8"

THICK LAYER OF GRAVEL

EXTENSION OF FABRIC AND WIRE INTO THE TRENCH

SUPPORT WIRE (OPTIONAL): 14 GAUGE, 6" MESH WIRE FENCE. (NEEDED IF USING

AND TENSILE STRENGTH AND CONTAINING UV INHIBITORS AND STABILIZERS TO ENSURE 6 MONTH

- ON THE DOWN SLOPE SIDE OF THE TRENCH. DRIVE THE POST AT LEAST 1 FOOT INTO THE GROUND

- (NOTE: IF THE FENCE HAS PRE-ATTACHED POSTS OR STAKE, DRIVE THEM DEEP ENOUGH SO THE FABRIC IS SATISFACTORILY IN THE TRENCH PER STEP 6.)
- FASTEN SUPPORT WIRE FENCE TO THE UP SLOPE SIDE OF THE POSTS, EXTENDING IT 8" INTO TRENCH. (USE ONLY IF REQUIRED BY MANUFACTURER.) RUN A CONTINUOUS LENGTH OF GEOTEXTILE FABRIC ALONG UP SLOP SIDE OF POSTS. 5. IF A JOINT IS NECESSARY, NAIL THE OVERLAP TO THE NEAREST POST WITH A WOOD LATH.
- MAINTENANCE

FILTER FABRIC

- BLEND THE RIPRAP SMOOTHLY TO THE SURROUNDING GRADE. 4. STABILIZE ALL DISTURBED AREAS IMMEDIATELY FOLLOWING INSTALLATION. ESPECIALLY DOWNSTREAM OR DOWN SLOPE

CULVER

DESIGN REQUIREMENTS

FILTRATION.

FILTER PLACEMENT

**BIPBAP PLACEMENT** 

INSTALLATION:

- 1. INSPECT PERIODICALLY FOR DISPLACED ROCK MATERIAL, SLUMPING, AND EROSION AT EDGES,

# **CONSTRUCTION SPECIFICATIONS**

For:

Stop 17 & 18 Drainage Improvement Project

Project Owner: Town of Long Beach, IN



### LONG BEACH TOWN COUNCIL

Bob LeMay – Vice President John Wall – Member Mike Johnstone - Member Mary Lou McFadden – Member John Kocher – Member Tim Perry – Clerk-Treasurer

Specification Prepared By:

### Haas & Associates, LLC





Samuel Ozeh, P.E. Certifying Professional Engineer Date: August 8, 2023

### SPECIFICATIONS SECTION 01 01 00

The Specifications that govern the Contract are comprised of the following documents:

- The latest edition of the Indiana Department of Transportation's "Standard Specifications" hereby defined as and henceforth referred to as the "Standard Specifications"
- The Special Provisions to the "Standard Specifications" which are defined as Special Provisions Section 01 02 00
- All other Contract Documents listed under Section 01 or Section 33 which are hereby defined as and henceforth referred to as the "Additional Specifications"

In case of a discrepancy between the various Contract Documents, the following relationships apply:

Agreement, General Conditions, Supplementary Conditions, and descriptions of pay items listed in the Schedule of Pay Items or the Itemized Bid Form	Hold Over:	Plans/Drawings Additional Specifications Special Provisions Standard Specifications
Plans/Drawings	Hold Over:	Additional Specifications
		Special Provisions
		Standard Specifications
Additional Specifications	Hold Over:	Special Provisions
		Standard Specifications
Special Provisions	Hold Over:	Standard Specifications

### SPECIFICATIONS SECTION 01 01 00

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Plans/Drawings	Hold Over:	Additional Specifications
		Special Provisions
		Standard Specifications
Additional Specifications	Hold Over:	Special Provisions
		Standard Specifications
Special Provisions	Hold Over:	Standard Specifications

### SPECIAL PROVISIONS SECTION 01 02 00

These Special Provisions amend or supplement the Standard Specifications. All provisions which are not so amended or supplemented remain in full force and effect.

### Section 101 - DEFINITIONS AND TERMS

### A. DELETIONS

- 1. Delete all text within Section 101.41 "Proposal book."
- 2. Delete all text within Section 101.54 "Special Provisions."

### **B. CLARIFICATIONS**

- 1. When the Standard Specifications refers to the phrase "Proposal book", it shall be taken to mean "Contract Documents".
- 2. When the Standard Specifications refers to the word "Department" as it is defined in Section 101.18 of the Standard Specifications, it shall be taken to mean "Owner" (or "Engineer as Owner's Representative" if applicable) in the Contract instead of "The Indiana Department of Transportation as constituted under the laws of Indiana for the administration of highway work".
- 3. When the Standard Specifications refers to the word "State" or "State of Indiana" as it is defined in Section 101.57 of the Standard Specifications, it shall refer to the "Owner" in the Contract instead of "The State of Indiana acting through its authorized representative" unless the reference is made in regard to the governing Laws of the State of Indiana.
- 4. When the Standard Specifications refers to the phrase "Special Provisions" as it is defined in Section 101.54 of the Standard Specifications, it shall refer to this document with the title "Special Provisions (to the Standard Specifications)" instead of "Additions or revisions to the Standard Specifications that describe conditions and requirements for special situations on a specific project".
- 5. If specific definitions listed in Section 101 of the Standard Specifications are specifically defined elsewhere in Contract Documents other than the Standard Specifications, the definitions established elsewhere within those other Contract Documents shall govern throughout all Contract Documents.

### Section 102 – BIDDING REQUIREMENTS AND CONDITIONS

### A. DELETIONS

1. Delete Section 102 - "Bidding Requirements and Conditions".

### **SECTION 103 - AWARD AND EXECUTION OF CONTRACT**

### A. DELETIONS

1. Delete Section 103 - "Award and Execution of Contract".

### **SECTION 104 - SCOPE OF WORK**

- A. DELETIONS
  - 1. Delete Sections 104.02 and 104.03 "Changed Conditions" and "Extra Work," respectively.

### **B. ADDITIONS**

- 1. Add the following paragraphs to Section 104.04 "Maintenance of Traffic"
- 2. The Contractor shall be responsible for all Construction signage and maintenance of traffic.
- 3. The Contractor shall provide suitable barricades, warning lights, and warning signs at all places where the Work causes obstructions to the public. Such barriers and signs shall be in accordance with Part 6 of the "Manual on Uniform Traffic Control Devices for Streets and Highways, DOT (FHWA)", most current edition, and with other applicable city, county, and state regulations. On streets during the progress of the Work, signs, barricades, and personal notification of residents shall be employed.
- 4. The Contractor shall maintain barricades, barrels, and signage for construction, as shown in the latest version of INDOT's modified MUTCD.
- 5. The Contractor shall provide barrels over structures that protrude above the milled surface, 2-inches or greater.
- 6. The Contractor shall arrange their Work so that traffic is obstructed as little as possible. The Work shall be done with the least possible inconvenience to the public. This arrangement shall include scheduling work such that no street and adjacent alley shall be inaccessible at the same time. Access from the street or the alley shall be provided to the property Owner at all times.
- 7. During the prosecution of the Work, each Contractor shall provide flag persons and shall put up and maintain such barriers and lights isolated in work zones as necessary to protect the public and prevent accidents.
- 8. In accepting this Contract, the Contractor assumes full responsibility for the sufficiency and safety of all such temporary Work or facilities and for any damage which may result from their failure or their improper construction, maintenance, or operation and will indemnify and save harmless the Owner and the Engineer from all claims, suits, or actions and damages, or costs of every description arising because of failure to comply with the above provisions.
- 9. The Contractor shall notify the local media and all affected police, fire, emergency services, street, public transportation, sanitary and water departments, and school districts in writing 48 hours before occupying any roadway for construction purposes other than routine travel or transport and once per week for the continued occupation of the roadway.

### C. BASIS OF PAYMENT

1. Payment for all work covered by Maintenance of Traffic work covered under the Specification Sections listed above shall be at the contract Lump Sum price for Maintenance of Traffic, as specified herein. Payments will be made throughout the Project and shall be prorated uniformly based on the project duration of the Work.

### **SECTION 105 - CONTROL OF WORK**

### A. DELETIONS

- 1. Delete all text within Section 105.08(a) "Construction Stakes, Lines, and Grades".
- 2. Delete the second paragraph of Section 105.08(b) "Construction Engineering by the Contractor".
- 3. Delete the text "When specified, "from the first paragraph of Section 105.08(c) "Production Staking by the Contractor".

4. Delete Sections 105.15 and 105.16 – "Acceptance and Final Inspection" and "Notice of Changed Conditions and Claims," respectively.

### **B. ADDITIONS**

- 1. Add the following paragraphs to Section 105.08 "Construction Stakes, Lines, and Grades"
  - a. All stakes, templates, straight-edges, and other devices necessary for checking, marking, and maintaining points, lines, and grades shall be furnished by the Contractor.
  - b. The Contractor shall coordinate with the Engineer to make all measurements and surveys that involve determining final pay quantities, including original and final cross-sections for all earthwork.
  - c. The supervision of the Contractor's construction engineering personnel shall be the responsibility of the Contractor.
  - d. This Work shall also include grade checks to ensure grades do not exceed the maximum running and cross slopes set forth by the Americans with Disabilities Act.
  - e. Layout of all HMA Patching and limits of construction shall be coordinated with the field engineer. The Contractor's assistance in marking out the limits of construction and patching is required.

### C. BASIS OF PAYMENT

1. Payment for this work will be paid for at the contract Lump Sum price for Construction Engineering, as specified herein. Payments will be made throughout the Project and shall be prorated uniformly based upon the project duration of the Work.

### **SECTION 106 - CONTROL OF MATERIAL**

- A. DELETIONS
  - 1. Delete Section 106.01(c) "Buy America Requirement"

### **SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC**

- A. DELETIONS
  - 1. Delete Section 107.06 "Equal Employment Opportunity Trainees"

### **SECTION 108 - PROSECUTION AND PROGRESS**

### A. DELETIONS

1. Delete Section 108 - "Prosecution and Progress"

### SECTION 109 - MEASUREMENT AND PAYMENT

### A. DELETIONS

- 1. Delete Section 109.04 "Cost Reduction Incentive, CRI"
- 2. Delete Section 109.05 "Payment for Extra Work" (Inclusive of subsections)
- 3. Delete Section 109.06 "Eliminated Pay Items"
- 4. Delete Section 109.07 "Partial Payments"
- 5. Delete Section 109.08 "Final Payment"

### **SECTION 113 - PARTNERING OVERHEAD**

### A. DELETIONS

1. Delete Section 113 – "Partnering Overhead"

### **SECTION 202 – REMOVAL OF STRUCTURES AND OBSTRUCTIONS**

### A. ADDITIONS

- 1. Add the following paragraphs to Section 202.02 "General Requirements"
  - a. The Contractor shall be responsible for removing all items from within the project limits and right-of-way that are in conflict with required Work including but not limited to signs, parking ties, planters, mailboxes, landscape block, CMU retaining walls, and concrete retaining walls, except for concrete slabs, sidewalks, drives, curbs and gutters, and pipe, which are paid for by their respective pay item, even if such items are not marked on the plans for removal. If an item is not clearly marked on the plans for removal, the field Engineer shall be notified before the removal of such items; some of these items shall be repositioned or reset and the cost of repositioning or resetting those items shall not be paid for directly.
  - b. The Contractor shall visit the site before Bidding to understand the existing conditions and encumbrances.
  - c. Any salvageable items within the project limits that are owned by any party other than the Owner will be removed as necessary to make way for the proposed Work and shall be returned to their rightful owner.
  - d. Existing regulatory or traffic control signs specifically called out for replacement shall be removed only after the new replacement signs have been installed.
  - e. Signs to remain shall be reset at the proper offset distance from the roadway edge. If there is no adjacent vertical curb present, the sign shall be repositioned to be 2 feet from the edge of the pavement to the leading edge of the sign. If there is a vertical curb present, the sign shall be repositioned to be 2.5 ft from the edge of the adjacent vertical curb face to the leading edge of the sign.
  - f. The Contractor shall protect all trees, shrubs, retaining walls, fence poles, topsoil, grass, surface structures, and other property to remain.
  - g. The Contractor shall adequately protect all trees and shrubs. No excavated material shall be placed so as to injure such trees or shrubs. Trees or shrubs destroyed by the negligence of the Contractor or his employees shall be replaced by him with a new stock of acceptable size and age, at the proper season, and at the sole expense of the Contractor.
- 2. Add the following paragraphs to Section 202.05 "Removal of PCCP, Sidewalks, Curbs, RCBA, and Reinforced Concrete Moment Slabs"
  - a. All concrete curb, curb, and gutter to be removed shall be removed from the site and taken to an approved landfill or recycling facility.
  - b. Removal limits shall be marked by the Contractor and coordinated with the Engineer before demolition work commencing.

- c. All areas to be removed shall be saw-cut to an adequate depth to ensure the neat removal of the curb or curb and gutter without damage to the adjoining sidewalk and/or curb ramps and pavement.
- d. It may be necessary to provide an additional relief cut to remove the concrete curb or curb and gutter without damage to the adjoining sidewalk and/or curb ramp.
- e. Concrete sidewalk, concrete curb, gutter, concrete curb, asphalt pavement, or other items outside the removal limits damaged by the removal process will be repaired or replaced, in kind, to the satisfaction of the Owner with no additional cost to the Owner.
- f. If saw-cut areas become damaged during construction before replacement, then the Contractor shall re-cut the damaged edge before replacing. It may be necessary to remove the section of concrete to the next construction joint.
- g. All removal shall include the excavation necessary to allow for the proposed base grade profile.
- h. The Contractor shall schedule the removals of the concrete curb or curb and gutter with the replacement to not exceed one week's duration between the removal and replacement thereof.
- i. The Contractor shall provide safety measures around the removed areas of curb or curb and gutter. The safety measures may include but are not limited to barrels, cones, caution tape, signage, etc. This Work shall be included in the cost of Curb, Saw-cut, and Remove or Curb & Gutter, Saw-cut, and Remove.
- j. The Contractor shall take special care to remove the concrete from around existing signposts, utility valves boxes, hand holes, etc.

### **B. BASIS OF PAYMENT**

1. This Work shall not be paid for directly, but shall be included in the cost of the pay item for pipe installation with exception of specific items to be paid for under their own pay items as is noted on the itemized Bid Form.

### **SECTION 203 - EXCAVATION & EMBANKMENT**

### A. ADDITIONS

- 1. Add the following paragraphs to Section 203.09 "General Requirements"
  - a. Asphalt pavement removal limits shall be marked by the Contractor and coordinated with the Engineer before demolition work commencing.
  - b. All pavement areas to be removed shall be saw- cut to an adequate depth to ensure the neat removal of the pavement section.
  - c. It may be necessary to provide an additional relief cut in order to remove the pavement section without damaging surrounding pavement.
  - d. Asphalt pavement or other items outside the removal limits damaged by the removal process will be repaired or replaced, in kind, to the satisfaction of the Owner with no additional cost to the Owner.
  - e. All asphalt pavement removal shall include the excavation necessary to allow for the proposed base courses.
  - f. The Contractor shall schedule the removals with the same day replacement of the pavement section.

- g. The Contractor shall provide safety measures around the removed areas pavement. The safety measures may include but are not limited to, barrels, cones, caution tape, signage, etc... This work shall be included in the cost of other respective items such as Maintenance of Traffic.
- h. The Contractor shall take special care into removing the asphalt pavement from around existing signposts, utility valves boxes, castings, and any other structures to remain within the pavement removal area. Damage to any structures to remain shall be replaced by the Contractor at no additional expense to the Owner, etc.
- i. If saw saw-cut areas become damaged during construction before patching, then the Contractor shall re-cut the damaged edge before the commencement of any HMA patching.
- j. All poles, fences, sewer, gas, water, sprinkler systems, drainage, or other pipes, wires, conduits, manholes, structures, and property in the proximity of any excavation shall be supported and protected from damage by the Contractor during construction.
- k. Wherever sewer, gas, water, sprinkler systems, drainage, or other pipes or conduits cross the excavation, the Contractor shall support said pipes and conduits without damaging them or interrupting their use during the progress of the Work. The manner of supporting such pipes, etc., shall be the Contractor's responsibility, and the Contractor shall correct any resulting damage to the pipes and conduits to the satisfaction of the Engineer and at no increase in the contract price. No additional payment shall be made for said supports.
- I. The Contractor shall promptly repair any damage to poles, fences, sewer, gas, water, sprinkler systems, drainage or other pipes, wires, conduits, manholes, structures, and property resulting from the Contractor's Work. The quality of all such repair work shall be to the satisfaction of the Engineer.
- m. The Contractor shall verify the location and "pothole" all existing utilities at every location work will cross, to determine the exact elevation of the existing utility. If a conflict is determined to exist, the Contractor shall notify the Engineer at once. This "Potholing" work shall be completed before the commencement of any underground utility work. This Work shall be incidental to the underground utility work and shall not be paid for separately.
- n. During the progress of the Work if the odor of natural gas is detected in any work area at any time during the progress of the Work, the Contractor shall immediately notify NIPSCO. Concurrently, the Contractor shall immediately notify the residents of the adjacent property of the problem. If the odor of natural gas is detected within the residence(s), the Contractor shall immediately advise the residents to evacuate the residence and notify NIPSCO.
- o. On-site Borrow excavation sites will not be permitted within the Site unless explicitly approved by the Engineer.

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### B. BASIS FOR PAYMENT

- 1. The Additions described within the pipe installation trench limit shall not be paid for separately from the trenching which is incidental to the pipe installation pay item in accordance with section 715.14
- 2. Grading of outfall location as called out on the plan shall be paid as follows:
  - a. Pay Item: Excavation, Common. Pay Unit Symbol: CYS

### **SECTION 205 - STORMWATER MANAGEMENT**

### A. ADDITIONS

- 1. Add the following paragraphs to Section 205.03 "General Requirements"
  - a. All erosion control products and practices shall also comply with the "Indiana Handbook for Erosion Control in Developing Areas".
  - b. Environmental resources outside of the project work limits shall be protected during the entire Contract period. The Contractor shall confine their activities to the project limits and other areas defined by the Contract Documents. The Contractor shall preserve vegetation that exists on-site before the initiation of any land-disturbing activities. The Contractor shall divert off-site runoff away from the disturbed areas.
  - c. Inlet protection shall be provided at all storm inlet structures and as shown on the plan sheets. The Contractor may use inlet inserts or coconut fiber mats over the gratings.
  - d. All erosion control measures shall be maintained until all incidental restoration is complete, and the vegetative ground coverings have been established.
  - e. Upon completion of all Work and the establishment of ground coverings, the Contractor shall remove all temporary erosion control measures.

### **B. BASIS OF PAYMENT**

1. The payment for all work contained within this specification section, including the development and subsequent management of the Stormwater Quality Control Plan (SWQCP), will be paid for at the contract Lump Sum price for Stormwater Management, as specified herein. Payments will be made throughout the Project and shall be prorated uniformly based upon the project duration of the Work.

### **SECTION 207 – SUBGRADE**

### A. ADDITIONS

1. All subgrade, unless specifically noted otherwise on the Drawings, shall be compacted in accordance with Subgrade Treatment Type I (24" of soil compacted in accordance 203.23)

### B. BASIS OF PAYMENT

1. Compaction of subgrade shall not be paid for directly but shall be included in the cost of other items of the Contract.

### SECTION 211 – B BORROW AND STRUCTURE BACKFILL

### A. ADDITIONS

- 1. Add the following text to Section 211.02 "Materials":
  - a. Structure Backfilling Requirements:
    - i. Unless otherwise shown, specified, and required by the Drawings, trenches shall be backfilled as follows:
      - The backfill shall be placed in lifts and mechanically compacted. If the Contractor can demonstrate to the satisfaction of the Engineer that satisfactory compaction can be obtained with lifts greater than 8" thick, then these thicker lifts may be allowed. Each lift shall not exceed 24". If satisfactory compaction cannot be obtained with 8" lifts, the

Contractor shall reduce the thickness of the lift and/or change their compaction method until satisfactory compaction is obtained. The Owner's soils engineering consultant shall be involved in this determination of backfill compaction.

- b. Bedding Requirements:
  - i. For reinforced concrete, ductile iron and vitrified clay pipes, pipe bedding material shall be crushed stone, or crushed gravel conforming to the requirements of Indiana Department of Transportation (INDOT) Coarse Aggregate Size No. 8 or compacted natural dune sand or as otherwise shown, specified, and required by the Drawings.
  - ii. Unless otherwise shown, specified, and required by the Drawings, when PVC pipe is used, it shall be installed in accordance with the latest revision of ASTM D2321 using Class II embedment material. INDOT Coarse Aggregate Size No. 73 and natural dune sand are acceptable Class II embedment materials. Class II embedment material shall be compacted to 95% of its maximum density as determined in accordance with Paragraphs 3.14.
  - iii. Pipe bedding shall be placed and mechanically compacted in lifts. The thickness of each lift shall be field-determined by compaction tests but in no case shall exceed 12". The bedding shall be brought up evenly on both sides of the pipe for the full length of the pipe. Care shall be taken to ensure thorough compaction of the fill under pipe haunches.
- c. Compaction Requirements:
  - i. Unless otherwise shown, specified, and required by the Drawings, bedding and backfill shall be compacted to a dry density not less than the following compaction percentage of maximum dry density as determined by the Standard Proctor Test (ASTM D-698):
    - Beneath piping for a minimum depth of 18": 95%
    - Under haunches and up to springline of pipe: 95%
    - Under pavements and curbs: 98%
    - From springline to 1 foot above top of pipe: 95%
    - Adjacent to (or behind) vertical walls: 95%
    - In lawn and gravel parking areas: 90%
    - Beneath footings and foundation slabs: 98%
  - ii. Trench backfill improperly compacted shall be re-excavated by the Contractor to the depth directed by the Engineer and then refilled and recompacted to the density specified at the Contractor's expense. The Contractor shall accommodate a minimum of one repeat test per lift of backfill for every 200 feet of improperly compacted trench that is re-excavated, refilled, and recompacted is anticipated to be performed.

### **B. BASIS OF PAYMENT**

1. All required bedding and backfill materials and compaction required by the Drawings and Specification shall be included in respective items on the Itemized Bid Form. If the required bedding and backfill materials are not specifically mentioned for inclusion in items on the Itemized Bid Form, then the items shall not be paid for directly but shall instead be included in the cost of other items.

### **SECTION 214 - GEOSYNTHETICS**

### A. ADDITIONS

- 1. Add the following paragraphs to Section 214.02 "Materials"
  - a. All geotextile for Riprap and Revetment Applications shall be woven Type 1B
  - b. All geotextile for Underdrains and drainage applications shall be non-woven Type 1B
  - c. All geotextile for Pavement and Subgrade Stabilizations shall be woven Type 1B
  - d. All geotextile for Structures (Drywells and Modified Catch basins) shall be non-woven Type 1B
  - e. All geotextile for Silt Fence shall be woven.
- 2. Add the following paragraphs to Section 214.04 "Fill Placement"
  - a. Contractor shall support the geosynthetic fabrics at the surface grade to ensure fabric stability and proper fabric coverage during initial aggregate placement to secure the fabric in place. Any shifting of the fabric during initial aggregate placement shall be corrected before the placement of additional aggregate.

### B. BASIS OF PAYMENT

1. All geotextile shall be included in the cost of the respective items called out to require geotextile on the plan.

### SECTION 301 - AGGREGATE BASE

### A. ADDITIONS

- 1. Before placing the proposed subbase stone, the Contractor shall compact the existing subgrade in accordance with specifications Section 207 Subgrade.
- 2. The aggregate for Base stone under Curb & Gutter shall be INDOT #53 Limestone or Crushed Concrete. No slag will be allowed. The aggregate base shall be placed to a compacted thickness of 6 inches or as otherwise stated on the Drawings.
- 3. Aggregate for base stone under sidewalk and concrete drives shall be INDOT #53 Limestone or Crushed Concrete. This aggregate base shall be placed to a compacted thickness of 4 inches or as otherwise stated on the Drawings.

### B. BASIS OF PAYMENT

- 1. Compacted Aggregate No. 53 stone shall be paid for as follows:
  - a. Pay Item: Compacted Aggregate, No. 53. Pay Unit Symbol: TON

### **SECTION 402 – HMA PAVEMENT**

### A. ADDITIONS

- 1. Add the following paragraphs to Section 402.01 "Description"
  - a. All asphalt surface mixture material used for asphalt paving other than patching shall be HMA Type B, 9.5mm (PG 64-22) Surface. No recycled material is allowed. HMA Surface shall be placed at the rate of 165#/SY (1.5 inches). All materials and thicknesses shall be as stated herein or as otherwise shown, specified, and required in the Drawings.

- All asphalt intermediate mixture material used for patching shall be HMA Type B, 19.0mm (PG 64-22) Intermediate. No recycled material is allowed. HMA Intermediate shall be placed at the rate of 385#/SY (3.5 inches) or as otherwise specified on the Drawings. All materials and thicknesses shall be as stated herein or as otherwise shown, specified, and required in the Drawings.
- c. If and when placing asphalt pavement over existing asphalt pavement, the existing asphalt pavement surface course shall be scarified or milled with a milling machine and shall have an asphalt tack coat applied prior to the placement of new asphalt pavement layer.
- d. Recycled asphalt shingles shall not be allowed.

### B. METHOD OF MEASUREMENT

1. Accepted quantities for HMA pavement shall be quantified by delivery tonnage ticket receipts and field-verified by the Engineer.

### C. BASIS OF PAYMENT

1. This Work shall be paid for per the "HMA, Patching" item in the Itemized Bid Form.

### **SECTION 406 - ASPHALT FOR TACK COAT**

### A. ADDITIONS

- 1. A tack coat shall be applied immediately before placing the hot mix asphalt surface.
  - a. No additional direct payment for this sequencing shall be made.

### A. BASIS OF PAYMENT

- 2. The paid quantity for this Work shall be ticketed and field verified by the Engineer.
- 3. This Work shall not be paid for directly, but shall be included in the cost of the pay item for HMA Patching

### SECTION 502 - PORTLAND CEMENT CONCRETE PAVEMENT, PCCP

### A. CLARIFICATIONS

- 1. The only acceptable method of curing will be the "white membrane" method.
  - a. There will be no direct payment for this item.

### B. BASIS OF PAYMENT

1. This Work shall not be paid for directly but instead shall be included in the cost of other items.

### **SECTION 603 - FENCES**

### **B.** ADDITIONS

- 1. Add the following paragraph to Section 603.06 "Resetting Fence."
  - a. All fence to be reset in quality and kind. The fencing shall be replaced such that the final installed fencing shall match the quality and kind of the fencing as it is before Work commences.
### C. BASIS OF PAYMENT

2. Any fence, posts, concrete footings, miscellaneous hardware, or any other materials and labor required for removing, storing, resetting, and replacing the fencing as described on the plans and specifications shall be included in the unit price for the item necessitating the fence disturbance.

# **SECTION 605 - CURBING**

# A. ADDITIONS

- 1. Full-depth expansion material is required at all cold joints, radii points, and at 40' (maximum) increments along with straight runs and where new concrete curb meets existing curb and gutter.
- 2. All joints where the new curb is to meet the existing curb shall be saw-cut as to provide a vertical edge to pour the new curb against.
- 3. Transverse control joints shall be placed at equal intervals, not to exceed 10 feet.

# B. BASIS OF PAYMENT

- 1. The concrete curb and gutter Work excepting Integral Curbs associated with Concrete ADA Curb Ramps will be paid for as follows:
  - a. Pay Item: Concrete, Curb / Curb & Gutter. Pay Unit Symbol: LFT
- 2. Integral Curbs associated with Concrete ADA Curb Ramps will be paid for as follows:
  - a. Pay Item: Concrete, Integral Curb. Pay Unit Symbol: LFT

# SECTION 610 – APPROACHES AND CROSSOVERS

## A. ADDITIONS

- 1. Add the following paragraphs to Section 610.03 "General Requirements":
  - a. All driveway approaches shall have a finished thickness of 6" or as otherwise noted in the Drawings.
  - b. All alley approaches shall have a finished thickness of 8" unless otherwise noted in the Drawings.

# B. BASIS OF PAYMENT

1. Payment for approaches and driveways, etc. is designated in the Itemized Bid Form.

# SECTION 611 – MAILBOX INSTALLATIONS

## A. BASIS OF PAYMENT

 All existing mailboxes and mailbox assemblies, whether shown on the Drawings or not, that are in conflict with the proposed work shall be removed and reinstalled/reset, without damage during the removing and reinstalling/resetting, in accordance with the Drawings. Such work shall not be paid for directly and the total cost of this required work shall be considered incidental to the project cost. Additionally, If the existing mailboxes and assemblies are damaged during removing and resetting, they shall be replaced in kind at no additional cost.

# SECTION 621 - SEEDING AND SODDING

# A. ADDITIONS

- 1. Add the following paragraph to Section 621.03 "Preparation of Ground Before Seeding":
  - a. Topsoil shall consist of natural, fertile, agricultural soil capable of sustaining plant and lawn growth. The material shall be free of stones 0.25" or larger, stumps, clay lumps, roots, brush or other objectionable materials. The topsoil or soil mixture shall have a pH range of 5.6 to 7.6, or adjusted to this range by addition of agricultural limestone.
  - b. Topsoil thickness shall be as is shown, specified, and required by the Drawings.
- 2. Add the following paragraph to Section 621.12 "Seasonal Limitations":
  - a. Grass/Lawn restoration shall be performed only between February 1 and October 31 unless otherwise approved by the Engineer.
- 3. Add the following paragraph to Section 621.10 "Watering Sod":
  - a. All water used shall be obtained from freshwater sources, preferably potable water, and free of harmful chemicals.

# **B. BASIS OF PAYMENT**

- 1. The following is requirements are included in the cost of Lawn Restoration Work:
  - a. The Contractor shall guarantee a good stand of grass by watering, mowing, and regrading, if necessary, until final acceptance of the Site. Any areas which do not show a uniform stand shall be resodded and re-mulched at the Contractor's expense.
  - b. The final acceptance of grass areas shall be made upon the request of the Contractor not earlier than 60 days after lawn restoration has commenced.
  - c. The Contractor shall be responsible for the lawn restoration and any erosion damage to the surface until final acceptance, and the Contractor shall replace grass that has become damaged by erosion at the Contractor's expense until final acceptance of the grass.
- 2. All material and work required by this section and the Lawn Restoration Detail shall be covered by respective "Seeding and Sodding" items in the Itemized Bid Form or shall otherwise not be paid for directly and shall be included in the cost of other items.

# **SECTION 702 - STRUCTURAL CONCRETE**

# A. CLARIFICATIONS

- 1. All concrete provided for this Project shall be INDOT Class "A" concrete.
- 2. Coarse aggregate shall be crushed limestone.

## **B. SUBMITTALS**

1. The Contractor shall submit a Concrete Job Mix formula, a minimum of 7 days before placement of concrete.

## C. BASIS OF PAYMENT

1. There will be no direct payment for this item.

# SECTION 715 - PIPE CULVERTS, AND STORM AND SANITARY SEWERS

# A. ADDITIONS

- 1. Add the following text to Section 715.01 "Description":
  - a. This work shall also consist of the construction of sanitary force main pipes.
- 2. Add the following text to Section 715.02 "Materials":
  - a. All pipes shall be furnished in the longest manufactured lengths unless otherwise shown or specified. Shorter or cut lengths shall be used only where necessary to make closure. Branches, bends, or other specials, where so shown or required, shall be made to standard dimensions unless otherwise shown. All pipes shall be straight, true to form, of full diameter throughout, and shall have deep and wide bell joints. The interior of all pipes and accessories shall be kept free from dirt and foreign matter at all times.
  - b. All joints shall be of a design that will permit flexibility and ensure watertight construction of the pipes. All joints shall be made in accordance with the instructions of the manufacturer of the joint material and/or the pipe. In all jointing operations, the trench must be dry when joints are made. Bell and spigot end of the pipe shall first be wiped clean before actual jointing operations are started.
  - c. Where a connection is required to connect new sewer pipe to an existing sewer pipe, the connection shall be made by using a stainless-steel shielded sewer coupling, including a gasket (ASTM 117391); 300 series stainless steel shear ring with a minimum thickness of .012" and 316 grade stainless steel nut and bolt tightening clamps. The shear ring and clamps shall meet the requirements of ASTM A16791. Adjustable repair coupling as manufactured by Mission Rubber Company or approved equal.
  - d. All similar components shall be manufactured and furnished by one manufacturer unless specifically approved by the Engineer in writing.
  - e. The following requirements apply for all new sanitary sewer pipes unless otherwise specified in the Drawings:
    - i. The sewer pipes, including laterals sewer pipes, and their associated fittings shall be SDR 26 Pressure Class Polyvinyl Chloride (i.e., PVC).
  - f. The following requirements apply for all new sanitary sewer force mains:
    - i. The force mains and associated fittings shall be either Cement Lined Ductile Iron satisfying ASTM C-700, polyvinyl chloride (i.e., PVC) pressure pipe satisfying AWWA C900-89 including addendum C900a-92, or polyethylene (i.e., PE) pressure pipe satisfying AWWA C906-99 as is shown, specified, and required by the Drawings.
  - g. The following requirements apply for all new storm sewer pipes unless otherwise specified in the Drawings:
    - i. Only one type and class of pipe shall be allowed between manholes.
    - ii. The sewer pipes and their associated fittings shall be SDR 26 Pressure Class Polyvinyl Chloride (i.e., PVC).
  - h. The following requirements apply for all replacement storm sewer pipes unless otherwise specified in the Drawings:
    - i. Only one type and class of pipe shall be allowed between manholes.

- ii. The sewer pipes and their associated fittings shall be either SDR 35 Polyvinyl Chloride (i.e., PVC) or reinforced concrete pipe (i.e., RCP) that is Class IV and satisfies ASTM C76 as is specifically shown, specified, and required by the Drawings. If RCP is required, joints shall be flexible watertight joints conforming to the joint requirements of the latest revision of ASTM C443. Joints shall have a groove on the spigot end for the O-ring gasket.
- i. The following requirements shall apply to all PVC pipes:
  - i. PVC pipe and fittings shall have smooth interior and shall have elastomeric gasket joints conforming to the latest revision of ASTM Specification D1784 and ASTM Specifications D2241.
  - ii. Cell classification shall be as defined in ASTM D1784. Only manufactured fittings shall be used.
  - iii. Each pipe shall be identified with the name of manufacturer, nominal size, cell classification, ASTM designation, the pipe stiffness designation, and the manufacturer's date code.
- j. The following requirements shall apply to all Ductile Iron pipes:
  - i. Ductile iron pipe shall conform to the latest revisions of ASTM A746, ANSI/ AWWA C150/A21.50, and ANSI AWWA C151/A21.51 and shall be thickness class 50.
  - ii. Ductile iron pipe fittings shall be class 250 for pipes 14" in diameter or greater, and 350 for pipes 12" in diameter or less unless otherwise noted on the plans.
  - iii. Ductile iron fittings shall conform to the latest revisions of ANSI/AWWA C110/A21.10 and C111/A21.11.
  - iv. All ductile iron pipe joints shall be rubber gasket mechanical joints conforming to the latest revision of ANSI/AWWA C111/A21.11. Field-flanges approved by the Engineer can be used for connections to flanged fittings.
  - v. Where indicated on the Drawings, ductile iron pipe and fittings shall be installed with polyethylene encasement conforming to the latest revision of ANSI/AWWA C105/A21.5.
- k. All pipes shall be installed in accordance with the follow:
  - i. All lengths of pipe shall be dimensioned accurately to measurements established at the site and shall be worked into place without springing or forcing. Cut sections of pipe shall be reamed to remove all burrs. The Contractor shall cut all pipes and drill all holes that may be necessary.
  - ii. The utmost care shall be exercised in transporting and handling all pipes, fittings, etc., to avoid shock and damage to pipe and coatings. Lifting shall be by hoist or skids when hand lifting is not feasible. Dropping will not be permitted. Pipe handled on skidways must not be skidded or rolled against pipe already on the ground. Damaged or defective pipe and appurtenances shall be replaced, at no increase in project cost.
  - iii. The pipe shall be thoroughly cleaned before being laid and kept clean during construction.
  - iv. All pipes or other material rejected by the Owner and Engineer as being not in conformance with the requirements of the Contract shall be removed immediately from the site of the work by the Contractor, and replaced with material which does comply. No additional compensation will be allowed the Contractor for replacement of such rejected material.
  - v. The laying of pipe on the prepared bedding material shall commence from the lowest point, with the spigot ends pointing in the direction of flow. All pipes shall be laid true to line and

grade. They shall be carefully centered so that when laid, they form a sewer with uniform invert

- vi. A pipe plug or bulkhead shall be used whenever pipe laying operations are not in progress as required to protect the pipe ends from foreign material.
- vii. Before making pipe joints, all surfaces of the joints shall be clean and dry. Lubricants, primers and adhesives shall be used in accordance with the manufacturer's recommendations. The pipe shall then be placed, fitted and adjoined so as to obtain a watertight joint. In the event that the previously laid pipe is disturbed, it shall be removed and re-laid.
- viii. The Contractor shall assure proper alignment and grade by the proper use of lasers, batter boards, surveying instruments or other means as may be approved by the Engineer.
- ix. All pipes shall be laid without break, upgrade from structure to structure with bell ends of the pipe upgrade. All pipes shall be installed with bedding as specified in the Drawings.
- x. Where concrete cradles and concrete encasements are required or ordered by the Engineer, the work will be measured and paid for by negotiated change order.
- xi. Before leaving the work for the night, during a storm, or for any other reason, care must be taken that the unfinished end of any pipe is securely closed with a tightly fitting cover or plug. Any earth or other material that may find entrance into the pipe through any such open end of an unplugged pipe shall be removed by the Contractor when work resumes at the Contractor's expense.

## **B. BASIS OF PAYMENT**

1. All work and materials required by this section shall be paid for under respective items in the Itemized Bid Form, and any work not specifically noted for payment on the Itemized Bid Form shall not be paid for directly but instead shall be included in the cost of other items.

# SECTION 720 - MANHOLES, INLETS, CATCH BASINS AND DRYWELLS

## A. ADDITIONS

- 1. Add the following paragraphs to Section 702.03 "General Requirements."
  - a. The use of cast iron ring inserts will be permitted on the use of round casting.
  - b. The use of precast concrete riser rings will be permitted for the curb style casting.
  - c. All iron castings for manholes and inlets shall receive a factory-applied coat of asphalt emulsion paint to the entire casting.
  - d. All storm sewer grated castings shall have a fish image and have "Dump No Waste" lettering cast in the metal.
  - e. All manholes and inlets shall conform to ASTM C-478.
  - f. All manhole and inlet joints shall be waterproof and watertight unless indicated otherwise in the construction plans.
  - g. All joints for the precast manhole sections shall use Press Seal EZ-Stik butyl rubber all-weather joint sealing rope, or approved equal, to provide a waterproof and watertight seal.
  - h. All rubber boot connector seals required for all 36" dia. and smaller pipes shall be Press Seal, PSX: Direct Drive high-performance watertight pipe to manhole connectors, or equal.

- i. All inlet and manhole structures shall be adjusted to the final plan grade,
- j. All manhole and inlet structures shall have a 6" thick bedding of INDOT #8 Limestone, compacted in place, extending beyond the base slab at least 6" all around.
- k. All lifts and other holes shall be plugged with an approved non-shrink grout to form a waterproof and watertight seal.
- I. Drywells shall be in accordance with [Dry Well Detail] in sheet C-04 of the project plans.

# B. BASIS OF PAYMENT

- 1. Rubber boot connector seals as specified herein, and all associated appurtenances, shall be included in the cost of the structure.
- 2. Iron castings and frames shall be included in the cost of the structure.
- 3. Adjustment of all inlet and manhole structures to final plan grade shall be included in the cost of the structure.
- 4. No. 8 Stone, where required, shall be included in the cost of the structure.
- 5. Non-woven geofabric, where required, shall be included in the cost of the structure.
- 6. Pipe and any associated pipe-related work shall not be included in the cost of the structure.
- 7. This Work shall be paid for at the Contract unit price per each structure as follows:
  - a. Pay Item: Structure, 48" dia, Type A. Pay Unit Symbol: EACH
  - b. Pay Item: Structure, 48" dia, Type A, Modified. Pay Unit Symbol: EACH
  - c. Pay Item: Structure, 1200 Gallon Drywell. Pay Unit Symbol: EACH
  - d. Pay Item: Structure, 1200 Gallon Drywell with Catch Basin Traps. Pay Unit Symbol: EACH
  - e. Pay Item: Structure, 18" Flared End Section. Pay Unit Symbol: EACH

# Section 801 – Traffic Controls and Maintenance Operations

# A. ADDITIONS

- 1. Add the following text to Section 801.03 "General Requirements":
  - a. General Requirements:
    - i. The Contractor shall be responsible for all Construction signage and maintenance of traffic.
    - ii. The Contractor shall provide suitable barricades, warning lights, and warning signs at all places where the Work causes obstructions to the public. Such barriers and signs shall be in accordance with Part 6 of the "Manual on Uniform Traffic Control Devices for Streets and Highways, DOT (FHWA)", most current edition, and with other applicable city, county, and state regulations. On streets during the progress of the Work, signs, barricades, and personal notification of residents shall be employed.
    - iii. The Contractor shall provide barrels over structures that protrude above the milled surface, 2-inches or greater.
    - iv. The Contractor shall notify the local media and all affected police, fire, emergency services, street, public transportation, sanitary and water departments, and school districts in writing 48 hours before occupying any roadway for construction purposes other than routine travel

or transport and once per week for the continued occupation of the roadway, or as is otherwise specifically stated and required in other Contract Documents.

- v. In accepting this Contract, the Contractor assumes full responsibility for the sufficiency and safety of all such temporary Work or facilities and for any damage which may result from their failure or their improper construction, maintenance, or operation and will indemnify and save harmless the Owner and the Engineer from all claims, suits, or actions and damages, or costs of every description arising because of failure to comply with the above provisions.
- b. Temporary Traffic Control Plan ("TTCP")
  - i. The Contractor shall prepare and provide to the Engineer a Temporary Traffic Control Plan ("TTCP") that is certified by a Professional Engineer duly licensed in the State of Indiana. The TTCP shall govern the Contractor's Work regarding the maintenance of traffic as specified in Specification Section 800 and its sub-sections as well as that which is described in section 104.04. The Contractor's TTCP shall specify the types, locations, and quantities of signs, barricades, markings, and any other necessary traffic control devices and measures that will be used throughout the Project duration, and it shall explain when such devices will be used in relation to the Contractor's planned phasing of the Work. The TTCP shall be submitted to the Engineer as a Shop Drawing Submittal and the Contractor shall not commence with any Work that impacts existing traffic until such time as the Engineer approves a final version of the Contractor's TTCP. The TTCP shall also abide by the following requirements:
    - The Contractor shall provide and maintain barricades, barrels, and signage for detours as is shown in the latest version of INDOT's modified MUTCD and per the guidance shown in the INDOT Urban Detour Standard Drawing.
    - The Contractor shall arrange their work so that traffic is obstructed as little as possible. The Work shall be done with the least possible inconvenience to the public. This shall include scheduling work such that there is always access to the project construction area on Lake Shore Drive by vehicles traveling from both directions.
    - During the prosecution of the Work, the Contractor shall provide flag persons and shall
      put up and maintain such barriers and lights as necessary to prevent accidents. The
      Contractor shall provide suitable barricades, warning lights and warning signs at all
      places where the Work causes obstructions to the public. Such barriers and signs shall
      be in accordance with Part 6 of the "Manual on Uniform Traffic Control Devices for Streets
      and Highways, DOT (FHWA)", most current edition, and with other applicable city, county,
      and state regulations. On streets which may be closed during the progress of the work,
      signs, barricades, and personal notification of residents shall be employed.
    - The Engineer's approval of the Contractor's TTCP shall not relieve the Contractor of its
      responsibility for the sufficiency and safety of all such temporary Work or facilities and
      for any damage which may result from their failure or their improper construction,
      maintenance or operation and will indemnify and save harmless the Owner and the
      Engineer from all claims, suits, or actions and damages, or costs of every description
      arising by reason of failure to comply with the provisions herein.
    - The Contractor shall notify the local media and all affected police, fire, emergency services, street, public transportation, sanitary and water departments, and school districts in writing 48 hours prior to occupying any roadway for construction purposes

other than routine travel or transport and once per week for continued occupation of roadway.

## **B. BASIS OF PAYMENT**

- Payment for all work covered under the Specification Sections listed above, inclusive of sub-sections and any Special Provisions made herein, shall be at the contract Lump Sum price for "Maintenance of Traffic". Payments will be made throughout the Project and shall be prorated uniformly based on the project duration of the Work.
- 2. No additional payment will be made for preparation of or required revisions to the Contractor's TTCP or for any individual maintenance of traffic devices or methods that are necessary.

# **SECTION 802 - SIGNS**

# A. ADDITIONS

1. All signs shall be mounted at heights in accordance with Section 2A.18 and Figure 2A-2 (C) of the MUTCD.

# **B. CLARIFICATIONS**

- 1. All new signs and existing signs to be removed, relocated, or reset shall receive new square type signposts.
- 2. All signposts shall be installed with anchor bases in accordance with INDOT Standard Drawing No. "E 802-SNGS-07" titled "Steel Sign Post Selection Table" and INDOT Standard Drawing No. "E 802-SNGS-09" titled "Steel Sign Posts Anchor Base Details".

## C. BASIS OF PAYMENT

- 1. All new signs and existing signs called for removal, relocation, or resetting, including all posts and other required hardware, materials, and work, shall be paid as follows:
  - a. Pay Item: Sign, Relocate. Pay Unit Symbol: EACH

# COORDINATION AND SCHEDULING SECTION 01 31 00

### **PART 1 - COORDINATION**

- 1.1 THIRD PARTIES
  - A. In General
    - i. In performing any and all work under this Contract, the Contractor shall coordinate their work with any adjacent Contractors, the Owner, the Town of Long Beach Police, Fire, and Water Departments, Emergency Medical Services, Michigan City School Corporation, NIPSCO and their contractor(s), AT&T, Comcast Cable, ACME Fiber Optic, Michigan City Municipal Bus Lines and other third parties operating within or adjacent to the project Site, and the Contractor shall cooperate with them in every reasonable way such that there shall be the minimum practicable interference with the operations of other third parties.
  - B. Adjacent Third-Party Contractors
    - i. The Contractor shall afford any adjacent contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work within the project Site.
    - ii. If any part of the Contractor's Work depends upon the work of the Owner or other contractors doing work within the project Site, the Contractor shall, prior to proceeding with the Contractor's Work, inspect and promptly report to the Engineer any apparent discrepancies or defects in such work that render it unsuitable for the Contractor to properly execute their Work. Failure of the Contractor to inspect and report any such discrepancies or defects shall constitute an acceptance of that adjacent contractor's work as fit and proper to receive their work.
    - iii. Should the Contractor cause damage to the work or property of any adjacent contractor on the site, the Contractor shall, upon due notice, settle with such other contractor by agreement or arbitration.
    - iv. The Contractor shall not cut or otherwise alter the work of any adjacent contractor nor permit any of their subcontractors to cut or otherwise alter the work of any adjacent contractor, except if the Contractor has written authorization to do so from the contractor to be affected or unless provided a written directive to do so from the Engineer. All damage done to another contractor's work due to the Contractor, or the Contractor's subcontractors, shall be duly repaired at the expense of the Contractor.
    - v. If a dispute arises between the Contractor and adjacent contractors as to their responsibility for cleaning up the Site, the Owner may clean up the Site and charge the cost thereof to the responsible contractor as shall be determined by the Engineer.
  - C. Northern Indiana Public Service Co. ("NIPSCO")
    - i. In order to make way for the sanitary sewer work planned for the Long Beach Lake Shore Drive Sanitary Sewer project, existing buried gas utilities, including service connections, were scheduled to be relocated by NIPSCO and their contractor(s). NIPSCO was to be completing this relocation work in two separate projects. The general scope of each of these projects is described below:
      - a. NIPSCO Project A

- Relocate existing gas utilities, including services, along Lake Shore Drive from approximately station 79+80 to approximately station 88+00 Line L.
- Relocate existing gas utilities, including services, along Lake Shore Drive from approximately station 121+70 to approximately station 123+00 Line L.
- Relocate existing gas utilities, including services, along Moore Road from approximately station 0+00 to approximately station 1+60 Line M.
- Relocate the existing gas service to 3008 Moore Road.
- b. NIPSCO Project B
  - Relocate existing gas utilities, including services, along Lake Shore Drive from approximately station 1+50 to approximately station 41+80 Line L.
- ii. The aforementioned information has been provided for contextual reference only as approximate locations for proposed gas relocations are shown on the Drawings; however, the Long Beach Lake Shore Drive Sanitary Sewer (LSDSI) project did not move forward with construction and NIPSCO has not completed these relocations as of August 16, 2022. It is understood that NIPSCO will not be completing these relocations until some point in the future if and when the LSDSI project is scheduled for construction.

## 1.2 ROAD CLOSURE NOTIFICATIONS

A. The Contractor shall notify the Town of Long Beach directly, and all Town of Long Beach residents, via the local radio stations (WEFM and WIMS), and newspaper (LaPorte Herald-Argus) of pending street closures and corresponding detours at least 48 hours prior to closing any street within the project Site.

### 1.3 CONSTRUCTION COORDINATION MEETINGS

- A. To help facilitate the coordination of this Project, construction coordination meetings will be conducted on a regular basis, as determined by the Engineer; typically, once every two weeks.
- B. The meetings will be held at the project site, or near the project site, as determined and set forth by the Engineer.
- C. The meetings shall be attended by the Contractor, and may be attended by the Owner, local utilities and others as is needed and as are invited by the Engineer. The Contractor may invite any of their sub-contractors to the meeting(s) as they deem necessary for the smooth coordination of the project. The Contractor shall not invite other third parties that are not the Contractor's sub-contractors to the meetings.

## 1.4 INTERFERENCE WITH EXISTING WORKS

A. The Contractor shall at all times conduct their operations so as to interfere as little as possible with existing facilities and operations.

- B. The Contractor shall develop a program, in cooperation with the Engineer and interested officials, which shall provide for the constructing and putting into service the new works in the most orderly manner possible. The program shall consider the requirements of the General Conditions and Supplementary Conditions. This program shall be adhered to except as is expressly described and permitted. All work of connecting with, cutting into, and reconstructing existing pipes or structures shall be planned to minimize interference with the operation of the existing facilities, when the demands on the facilities best permit such interference, even though it may be necessary to work outside of normal working hours to meet these requirements. These requirements are particularly applicable to the relocation of water mains and the placement of water service replacements into use. The process of water system flushing, disinfecting, and activation requires coordination with, and the approval of, the Town of Long Beach Water Department. Before starting any Work which will interfere with the operation of existing facilities, the Contractor shall do all possible preparatory work and shall see that all tools, materials and equipment are made ready and at hand.
- C. The Contractor shall make such minor modifications in the work relating to existing structures as may be necessary, without additional compensation.
- D. The Contractor shall have no claim for additional compensation by reason of delay or inconvenience in adapting their operations to keep potable water continuously flowing in the existing water system.

## PART 2 - SCHEDULING

- 2.1 PROJECT MILESTONES
  - A. The Contractor shall schedule work such that all Contract Work is completed in accordance with the substantial, final, and any other stated milestones set forth and established in the Construction Agreement.
  - B. If the Contractor does not complete the Work in accordance with the established milestones, the Contractor may be required to pay liquidated damages if other Contract Documents require this payment, and such liquidated damages shall be in the amount as is set forth and established in those other Contract Documents.

## 2.2 SCHEDULING CONSTRAINTS

- A. The Contractor shall adhere to all project milestones while also adhering to the scheduling constraints listed below, and the Contractor shall not receive additional compensation for doing so.
  - i. Access to homes by residents shall be available at all times during construction.

# COORDINATION AND SCHEDULING SECTION 01 31 00

## PART 1 - COORDINATION

- 1.1 THIRD PARTIES
  - A. In General
    - i. In performing any and all work under this Contract, the Contractor shall coordinate their work with any adjacent Contractors, the Owner, the Town of Long Beach Police, Fire, and Water Departments, Emergency Medical Services, Michigan City School Corporation, NIPSCO and their contractor(s), AT&T, Comcast Cable, ACME Fiber Optic, Michigan City Municipal Bus Lines and other third parties operating within or adjacent to the project Site, and the Contractor shall cooperate with them in every reasonable way such that there shall be the minimum practicable interference with the operations of other third parties.
  - B. Adjacent Third-Party Contractors
    - i. The Contractor shall afford any adjacent contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work within the project Site.
    - ii. If any part of the Contractor's Work depends upon the work of the Owner, Town of Long Beach or other contractors doing work within the project Site, the Contractor shall, prior to proceeding with the Contractor's Work, inspect and promptly report to the Engineer any apparent discrepancies or defects in such work that render it unsuitable for the Contractor to properly execute their Work. Failure of the Contractor to inspect and report any such discrepancies or defects shall constitute an acceptance of that adjacent contractor's work as fit and proper to receive their work.
    - iii. Should the Contractor cause damage to the work or property of any adjacent contractor on the site, the Contractor shall, upon due notice, settle with such other contractor by agreement or arbitration.
    - iv. The Contractor shall not cut or otherwise alter the work of any adjacent contractor nor permit any of the their subcontractors to cut or otherwise alter the work of any adjacent contractor, except if the Contractor has written authorization to do so from the contractor to be affected or unless provided a written directive to do so from the Engineer. All damage done to another contractor's work due to the Contractor, or the Contractor's subcontractors, shall be duly repaired at the expense of the Contractor.
    - v. If a dispute arises between the Contractor and adjacent contractors as to their responsibility for cleaning up the Site, the Owner may clean up the Site and charge the cost thereof to the responsible contractor as shall be determined by the Engineer.

## 1.2 ROAD CLOSURE NOTIFICATIONS

A. The Contractor shall notify the Town of Long Beach directly, and all Town of Long Beach residents, via the local radio stations (WEFM and WIMS), and newspaper (LaPorte Herald-Argus) of pending street closures and corresponding detours at least 48 hours prior to closing any street within the project Site.

# 1.3 CONSTRUCTION COORDINATION MEETINGS

- A. To help facilitate the coordination of this Project, construction coordination meetings will be conducted on a regular basis, as determined by the Engineer; typically, once every two weeks.
- B. The meetings will be held at the project site, or near the project site, as determined and set forth by the Engineer.
- C. The meetings shall be attended by the Contractor, and may be attended by the Owner, local utilities, Town of Long Beach officials, and others as is needed and as are invited by the Engineer. The Contractor may invite any of their sub-contractors to the meeting(s) as they deem necessary for the smooth coordination of the project. The Contractor shall not invite other third parties that are not the Contractor's sub-contractors to the meetings.

## 1.4 INTERFERENCE WITH EXISTING WORKS

- A. The Contractor shall at all times conduct their operations so as to interfere as little as possible with existing facilities and operations.
- B. The Contractor shall develop a program, in cooperation with the Engineer and interested officials, which shall provide for the constructing and putting into service the new works in the most orderly manner possible. The program shall consider the requirements of the General Conditions and Supplementary Conditions. This program shall be adhered to except as is expressly described and permitted. All work of connecting with, cutting into, and reconstructing existing pipes or structures shall be planned to minimize interference with the operation of the existing facilities, when the demands on the facilities best permit such interference, even though it may be necessary to work outside of normal working hours to meet these requirements. These requirements are particularly applicable to the relocation of water mains and the placement of water service replacements into use. The process of water system flushing, disinfecting, and activation requires coordination with, and the approval of, the Town of Long Beach Water Department. Before starting any Work which will interfere with the operation of existing facilities, the Contractor shall do all possible preparatory work and shall see that all tools, materials and equipment are made ready and at hand.
- C. The Contractor shall make such minor modifications in the work relating to existing structures as may be necessary, without additional compensation.
- D. The Contractor shall have no claim for additional compensation by reason of delay or inconvenience in adapting their operations to keep potable water continuously flowing in the existing water system.

## PART 2 - SCHEDULING

## 2.1 PROJECT MILESTONES

- A. The Contractor shall schedule work such that all Contract Work is completed in accordance with the substantial, final, and any other stated milestones set forth and established in the Construction Agreement.
- B. If the Contractor does not complete the Work in accordance with the established milestones, the Contractor may be required to pay liquidated damages if other Contract Documents require this payment, and such liquidated damages shall be in the amount as is set forth and established in those other Contract Documents.

## 2.2 SCHEDULING CONSTRAINTS

- A. The Contractor shall adhere to all project milestones while also adhering to the scheduling constraints listed below, and the Contractor shall not receive additional compensation for doing so.
  - i. Summer Work Restriction: No Work shall be performed in the Lake Shore Drive roadway limits (i.e., from edge of pavement to edge of pavement as is shown in the Drawings) beginning on the first day of the Memorial Day weekend and ending on the last day of the Labor Day weekend.
  - ii. Access to homes by residents shall be available at all times during construction.

# ABBREVIATIONS SECTION 01 42 13

#### PART 1 GENERAL

- 1.1 SECTION INCLUDES
  - A. Abbreviations
  - B. Standards for Abbreviations

## 1.2 RELATED SECTIONS

A. Abbreviations provided in this section are used where applicable in other Specification Sections.

#### 1.3 ABBREVIATIONS

A. Abbreviations which may be used in Divisions 1 through 16 for units of measure are as follows:

alternating current.....ac

American wire gauge	AWG
ampere(s)	amp
ampere-hour(s)	AH
annual	ann
Ampere Interrupting	
Capacity	AIC
atmosphere(s)	atm
average	avg

biochemical oxygen dema	ndBOD
Board Foot	FBM
brake horsepower	bhp
Brinell Hardness	BH
British thermal unit(s)	Btu

calorie(s)	cal
decibels	dB
decibels (A scale)	dBa
degree(s)	deg
dewpoint temperature	dpt
diameter	dia
direct current	dc
dissolved oxygen	DO
dissolved solids	DS
dry-bulb temperature	dbt
•	

Carbanaceous	Biochemical	oxygen
Colsius (contigrado)	C	
Centor to Contor		
centimeter(s)	CIII	
chemical oxygen den		
coefficient, valve flow	vC _v	
cubic	CU	
cubic centimeter(s)	CC	
cubic feet per day	cfd	
cubic feet per hour	cfh	
cubic feet per minute	cfm	
cubic feet per minute	) 'J	
standard conditions	sscfm	
cubic feet per second	1cfs	
cubic foot (feet)	cu ft	
cubic inch(es)	cu in	
cubic vard(s)	cu vd	
, , ,	,	
foot (feet)	ft	
foot-candle	fc	
foot-pound	ft-lb	
foot-nounds ner minu	ite ft-lh/min	
foot-nounds per seco	nd ft-lh/sec	
formazin turbidity uni	it(s) FTU	
frequency	frog	
11eque11cy		
aallon(s)	len	
gallong par day	yaı and	
yanons per uay	yha	

ABBREVIATIONS SECTION 01 42 13 Page 1 of 4

efficiency	.eff
elevation	el
entering water temperature	eewt
entering air temperature	eat
equivalent direct radiation.	edr
face area	fa
face to face	.f to f
Fahrenheit	°F
feet per day	fpd
feet per hour	fph
feet per minute	fpm
feet per second	fps
foot (feet)	ft
Heat Transfer Coefficient	U
height	.hgt
Hertz	Hz
horsepower	hp
horsepower-hour	hp-hr
hour(s)	hr
humidity, relative	rh
hydrogen ion concentration	1рН
Indiana Department	of Environmental
Management	IDEM
inch(es)	in
inches per second	ips
inside diameter	ID
laakaan turhiditu unit(a)	1711
Jackson turbiuity unit(s)	JIU
kelvin	°K
kiloamperes	kA
kilograms	ka
kilometer	km
kilovar (kilovolt-amperes	
reactive)	kvar
kilovolt(s)	kV
kilovolt-ampere(s)	kVA
kilowatt(s)	1.14/
kilowatt-hour(s)	KW
	KW kWh
noise criteria	KW kWh nc
noise criteria noise reduction coefficient	kW kWh nc NRC
noise criteria noise reduction coefficient number	kw kWh nc NRC no
noise criteria noise reduction coefficient number	kw kWh nc NRC no
noise criteria noise reduction coefficient number ounce(s)	kw kWh nc NRC no no
noise criteria noise reduction coefficient number ounce(s) outside air	kw hwh nc NRC no oz oa
noise criteria noise reduction coefficient number ounce(s) outside air outside diameter	kw hwh nc ox no oz oa 0D
noise criteria noise reduction coefficient number ounce(s) outside air outside diameter parts per billion	kW nc nc no no oz oa 0D 0D
noise criteria noise reduction coefficient number ounce(s) outside air outside diameter parts per billion parts per million	kW hWh nc no oz oa oa OD ppb ppm

gallons per day
cubic footgpd/sq ft.
gallons per hourgph
gallons per minutegpm
gallons per secondgps
gas chromatography and
mass spectrometryGC-MS
gaugega
grain(s)gr
gram(s)g
grams per cubic centimetergm/cc

linear foot (feet)	lin ft
liter(s)	L

megavolt-amphere(s)	MVA
meter(s)	m
micrograms per liter	ug/L
miles per hour	mph
milliampere(s)	MA
milligram(s)	mg

milligrams per liter	mg/L
milliliter(s)	mL
millimeter(s)	mm
million gallons	MG
million gallons per day	mgd
millisecond(s)	ms
millivolt(s)	mV
minuta(a)	

mixed liquor suspended solids......MLSS

nephelometric turbidity unit......NTU net positive suction head.....NPSH pounds per square foot per hour psf/hr pounds per square inch.....psi pounds per square inch absolute.....psia pounds per square inch guage......psig power factor.....PF pressure drop or difference.....dp pressure, dynamic

> ABBREVIATIONS SECTION 01 42 13 Page 2 of 4

phase (electrical)	ph
pound(s)	lb
pounds per cubic foot	pcf
pounds per cubic foot	
per hour	pcf/hr
pounds per day	lbs/day
pounds per day per	
cubic foot II	os/day/cu ft
pounds per day per	
square foot	lbs/day/sq. ft
pounds per square foot	psf

revolutions per minute	rpm
revolutions per second	rps
root mean squared	rms
second(s)	sec
shading coefficient	SC
sludge density index	SDI

Sound Transmission	
Coefficient	STC
specific gravity	sp gr
specific volume	SP Vol
sp ht at constant pressure.	Ср
square	sq
square centimeter(s)	sq cm
square foot (feet)	sq ft
square inch (es)	sq in
square meter(s)	sq m
square yard(s)	sq yd

square yard(s)	sq yd
standard	std
static pressure	st pr
supply air	sa
Suspended solids	SS

temperature	temp
temperature difference	TD
temperature entering	TE
temperature leaving	TL
watt(s)	W
Watthour(s)	Wh
watt-hour demand	WHD
watt-hour demand meter	WHDM
week(s)	wk
Weight	.wt
wet-bulb	WB
wet bulb temperature	WBT

yard(s)	yd
year(s)	yr

(velocity).....vp

quart(s).....qt

Rankine	°R
relative humidity	rh
resistance	res
return air	ra
revolution(s)	rev

safety factorsf
-----------------

thousand Btu per hour thousand circular mils	Mbh kcmil
thousand cubic feet	Mcf
threshold limit value	TLV
tons of refrigeration	tons
torque	.TRQ
total dissolved solids	TDS
total dynamic head	TDH
total kjeldahl nitrogen	TKN
total pressure	TP
total solids	TS
total suspended solids	TSS
total volatile solids	TVS

vacuum	vac
viscosity	visc
volatile organic chemical	VOC
volatile solids	VS
volt(s)	V
volts-amphere(s)	VA
volume	vol

ABBREVIATIONS SECTION 01 42 13 Page 3 of 4

# 1.4 STANDARD FOR ABBREVIATIONS

A. Use ASME Y1.1-1989, "Abbreviations for use on Drawings and in Text" for abbreviations for units of measure not included in Paragraph 1.3.

## PART 2 PRODUCTS

Not Used

## PART 3 EXECUTION

Not Used

# REFERENCE STANDARDS SECTION 01 42 19

#### PART 1 - GENERAL

- 1.1 SECTION INCLUDES
  - A. Abbreviated and Symbols
  - B. Reference Standards
  - C. Definitions

### 1.2 RELATED SECTIONS

A. Information provided in this section is used where applicable in OTHER Specification Section.

### 1.3 REFERENCE ABBREVIATIONS

A. Reference to a technical society, trade association or standards setting organization, may be made in the Specifications by abbreviations in accordance with the following list:

AABC	Associated Air Balance Council		ASTM	American	Society	for	Testing	and	
AAMAArchit	tectural	Aluminum	Manufacturers		Materials				
	Association	า		AWI	Architectu	ral Woodw	ork In	stitute	
AASHTO	American /	Association o	of State Highway	AWPAAmerican Wood Preserves Association					
	and Transp	ortation Offic	ials	AWS	American Welding Society				
AATCC	American A	ssociation of	Textile Chemists	AWWA	American V	Vater Wor	ks Ass	sociation	
	and Coloris	ts		BHMABuild	BHMABuilders' Hardware Manufacturers Association				
ACI	American C	oncrete Insti	tute	BIA	Brick Instit	ute of Am	erican	l	
ADC	Air Diffusio	n Council		CABO	Council of	American	Buildi	ng Official	S
AFBMA	Anti-friction	n Bearing	Manufacturers	CAGI	Compresse	ed Air and	Gas Ir	istitute	
	Association	l		CISPI	Cast Iron S	oil Pipe In	stitut	5	
AGA	AGA American Gas Association			CMAACran	e Manufactu	rers Assoc	ciatior	n of Americ	ca
AGMAAmerican Gear Manufacturers Association		CRD	U.S. Corps of Engineers Specifications						
AHA	Association	n of Ho	ome Appliance	CRSI	Concrete R	einforcing	J Steel	Institute	
	Manufactu	rers		CTI	Cooling To	wer Institu	ıte		
AISC	American I	nstitute of Sto	eel Construction	DHI	Door and H	lardware li	nstitu	te	
AMCA Air M	ovement and	1 Control Ass	ociation, Inc.	DOH	Departmen	t of Health	n		
ANSI	American N	lational Stand	dards Institute	DOT	Departmen	t of Trans	portat	ion	
APA	PA American Plywood Association			Fed. Spec.	Federal Sp	ecification	IS		
ARI	ARI American Refrigeration Institute			FGMA	Flat Glass	Marketing	Asso	ciation	
ASCE	ASCE American Society of Civil Engineers		FM	Factory Mutual					
ASHRAE	American	Society	of Heating,	GSD	Gary Sanita	ary Distric	t		
	Refrigerati	ng and A	ir Conditioning	HMI	Hoist Manu	ufacturing	Instit	ute	
	Engineers			HPMASee HPVA					
ASME	American	Society	of Mechanical	HPVA	Hardwood	Plywood V	/eneei	⁻ Associati	on
	Engineers			ICEA	Insulated C	able Engir	neers	Associatio	'n
ASSE	American S	ociety of San	itary Engineers						

IDEM	Indiana Department of Environmental	NLMA	National Lumber Manufacturers
	Management		Association
IEEE	Institute of Electrical and Electronics	NSF	National Sanitation Foundation
	Engineers	OSHA	Occupational Safety and Health Act
IFI	Industrial Fasteners Institute	PCA	Portland Cement Association
INDOT	Indiana Department of Transportation	PCI	Prestressed Concrete Institute
MIL	Military Specifications	PDI	Plumbing and Drainage Institute
MSS	Manufacturer's Standardization Society	SAE	Society of Automotive Engineers
NAAMM	National Association of Architectural	SCPRF	Structural Clay Products Research
	Metal Manufacturers		Foundation
NACMNatio	nal Association of Chain Manufacturers	SMACNA	Sheet Metal and Air Conditioning
NBS	National Bureau of Standards, See NIST		Contractors' National Association
NEBB	National Environmental Balancing	SPI	Society of the Plastic Industry
	Bureau	SSPC	Steel Structures Painting Industry
NEC	National Electrical Code	Std. Specs.	Indiana Department of Transportation
NEMA	National Electrical Manufacturers		(INDOT) Standard Specifications
	Association	STI	Steel Tank Institute
NETA	National Electrical Testing Association	ТСА	Tile Council of American
NFPA	National Fire Protection Association	TIMA	Thermal Insulation Manufacturers'
NFPA	National Fire Products Association		Association
NFPA	National Fluid Power Association	UL	Underwriters' Laboratories, Inc.
NIST	National Institute of Standards and	USBR	U.S. Bureau of Reclamation
	Technology	USBS	U.S. Bureau of Standards, See NIST

## 1.4 REFERENCE STANDARDS

A. Latest Edition: Construe references to furnishing materials or testing, which conform to the standards of a particular technical society, organization, or body, to mean the latest standard, code, or specification of that body, adopted and published as of the date of bidding this Contract. Standards referred to herein are made a part of these Specifications to the extent which is indicated or intended.

Note: Refer to 2020 INDOT Standard Specifications for specific references to the Standard Specification cited in the project manual.

B. Precedence: The duties and responsibilities of the OWNER, CONTRACTOR or ENGINEER, or any of their consultants, agents or employees are set forth in the Contract Documents, and are not changed or altered by any provision of any referenced standard specifications, manuals or code, whether such standard manual or code is or is not specifically incorporated by reference in the Contract Documents. Any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority, to undertake responsibility contrary to the powers of the ENGINEER as set forth in the Contract Documents cannot be assigned to the ENGINEER or any of the ENGINEER's consultants, agents or employees.

### 1.5 DEFINITIONS

A. In these Contract Documents the words furnish, install and provide are defined as follows:

- 1. Furnish (Materials): to supply and deliver to the project ready for installation and in operable condition.
- 2. Install (services or labor): to place in final position, complete, anchored, connected in operable condition.
- 3. Provide: to furnish and install complete. Includes the supply of specified services. When neither furnish, install or provide is stated, provided is implied.

## PART 2 - PRODUCTS

Not Used

# PART 3 - EXECUTION

Not Used

# TEMPORARY FACILITIES SECTION 01 50 00

### PART 1 - GENERAL

### 1.1 CONTRACTOR REQUIREMENTS

- A. The Contractor shall be responsible for providing, installing, erecting, maintaining, servicing, replacing, removing, and otherwise procuring and managing all temporary facilities and associated labor that is listed here in this specification for all temporary facilities and associated labor that is not listed here in this specification but are needed to satisfy the requirements of the Contract Documents.
- B. The Contractor shall not be compensated directly for any materials, labor, or Work associated with providing the required temporary facilities.

### PART 2 - REQUIRED TEMPORARY FACILITIES

- 2.1 THE FOLLOWING TEMPORARY FACILITIES ARE REQUIRED
  - A. Weather tight enclosures and storage sheds of any kind
  - B. Heat and heating, including at all times, if necessary, that may be required or desired
  - C. Electric services, fuel, and other sources of power
  - D. Lighting
  - E. Stairs, ladders, ramps, scaffolds, runways, derricks, chutes, elevators and any other vertical access facilities
  - F. Sanitary toilets
    - i. The location of such facilities shall be changed if directed by the Engineer or local health authorities or other regulators duly empowered to regulate such facilities.
  - G. Pumps, wells, piping, and any other facilities required to remove, move, or otherwise manage groundwater, surface water, sewage, or other liquids.
  - H. Drinking water, food, and any other such items that may be required to nourish or otherwise sustain the Contractor's, and the Contractor's subcontractors', employees, staff, and other personnel.

# PROTECTION OF WORK AND PROPERTY SECTION 01 54 00

### PART 1 - GENERAL

#### 1.1 APPLICABILITY

A. The Contractor shall comply with all requirements set forth here in this specification, and the Contractor shall not be compensated directly for any labor, material, or work necessary to comply with these requirements.

#### **PART 2 - CONTRACTOR REQUIREMENTS**

#### 2.1 SITE CONDITIONS

- A. The Contractor shall be responsible for the condition of the project Site as it pertains to the Contractor's Work and actions and those of the Contractor's subcontractors at all times until such time as the Contractor receives final payment or demobilizes completely from the project site, whichever occurs later.
- B. The Contractor shall be responsible for protecting all trees, shrubs, lawns, private sprinkler systems, walks, pavements, roadways, structures, utilities, and other objects within the Site that are not specifically designated for removal, relocation, or replacement by the Drawings.

#### 2.2 SITE SAFETY

A. The Contractor shall be responsible for initiating, maintaining, supervising, managing, and otherwise providing all safety precautions and programs in connection with the Work so as to prevent damage, injury, or loss to all employees, Work, and the public on the Project Site and in connection with the Work, and the review of any such safety precautions and programs shall not be under the purview of the Engineer, Owner, or others including during construction observation or inspection.

#### 2.3 SITE LIMITS

A. The Contractor shall not place materials, temporary facilities, vehicles, debris, or any other items, objects, or materials anywhere outside of the project Site or on private property without first receiving and possessing the appropriate legal right to do so and providing proof such rights to the Engineer first.

#### 2.4 MATERIALS

- A. The Contractor shall be responsible for all materials and equipment to be incorporated into the Project and Work, whether in storage on or off the site, under the care, custody, or control of the Contractor or any of their Subcontractors
- B. The Contractor shall assume all liability for damage, loss, or destruction to the materials, equipment, and Work, and the Contractor shall repair or replace and such items to the Owner's satisfaction at the Contractor's expense.

### 2.5 PROTECTION OF THE PUBLIC

- A. The Contractor shall at all times complete the Work in such a manner so as to cause the least inconvenience and greatest protection to the general public.
- B. The Contractor shall provide traffic control and maintenance wherever required in accordance with the Contract Documents so as to safeguard the public.

### 2.6 EMERGENCIES

- A. In emergencies affecting the safety of persons, Work, or property within the Site the Contractor, without special instruction or authorization from the Engineer or Owner, shall act to prevent threatened damage, injury, or loss. Any additional compensation or extension of time claimed by the Contractor on account of such emergency work shall be determined as provided for in other Contract Documents.
- 2.7 <u>LAWS</u>
  - A. The Contractor shall at all times, at its sole expense, promptly comply with all laws and regulations of all federal, state, and municipal governments and appropriate departments, commissions, boards, and officers thereof, which may be applicable to the Contractor's actions and Work within the Site and in connection to the Project.

# TEMPORARY CONTROLS SECTION 01 57 00

### PART 1 - GENERAL

### 1.1 APPLICABILITY

A. The Contractor shall comply with all requirements set forth here in this specification, and the Contractor shall not be compensated directly for any labor, material, or work necessary to comply with these requirements.

#### **PART 2 - CONTRACTOR REQUIREMENTS**

#### 2.1 <u>DUST & MUD</u>

A. The Contractor shall maintain the Site to prevent dust and mud from accumulating, spreading, and dispersing and thereby becoming a nuisance, and the Contractor shall do so by implementing street sweeping, watering, wind breaks, and other means and methods.

#### 2.2 FIRE PROTECTION

- A. The Contractor shall provide portable fire extinguishers where needed and as required and directed by the Town of Long Beach Fire Department.
- B. The Contractor shall not be permitted to have open fires on Site and shall abide by all safety directives regarding the storage of flammable materials.

#### 2.3 RUBBISH & TRASH

- A. All rubbish and trash generated by the Contractor and the Contractor's subcontractors shall be removed from the Site and disposed of in a proper manner.
- 2.4 <u>WATER</u>
  - A. The Contractor shall provide and maintain a temporary drainage system and pumping equipment as is required to ensure all excavated areas, pits, and basins are free from ponded water.
  - B. The Contractor's method of pumping and draining water from the Site shall first be approved in writing by the Engineer.
  - C. Water discharged by the Contractor or its subcontractors from the Site shall be done so in accordance with the Indiana Department of Environmental Management's rules and regulations regarding erosion control and management. Discharged water shall not transport sediment from the Site nor shall it cause erosion in the Site or in areas adjacent to or near the Site.

#### 2.5 ROAD CLOSURES

- A. The Contractor may close roadways within the Site as is required to make way for the Work. Any such closures shall also abide by all notification and other requirements set forth in the Contract Documents. Additionally, the Temporary Traffic Control Plan shall be duly modified and approved in advance of the closure as is required to adequately accommodate the roadway closure.
- B. The Contractor shall close all roadways within the Site where two 10-foot wide lanes cannot be left open with all required MUTCD markings provided. If the Contractor wishes to keep open a single lane of traffic, then the Contractor shall provide continuously operating flagging operations as is required to dynamically direct two-way traffic through the single lane as long as the single lane remains open. Under no circumstance shall a single lane be left open without continuously operating flagging operations also being present.

- C. At the end of each day, all properties shall retain accessibility to all emergency vehicles such that in the event of an emergency at that property, emergency vehicles such as ambulances, firetrucks, and police vehicles, will be able to effectively maneuver through and traverse the Site to and from any driveway located on the property located within the Site.
- D. All of the requirements set forth in this section shall be paid for under the "Maintaining Traffic" pay item, and no other direct payment for any work or materials required to satisfy the requirements herein shall be made.

# MATERIALS, PRODUCTS AND WORKMANSHIP SECTION 01 62 00

#### PART 1 - GENERAL

1.1 DESCRIPTION: The requirements of this section include general standards and quality of materials, products and workmanship to be supplied for the project. Such materials products shall meet the general requirements specified herein and as specified elsewhere in the Contract Documents.

#### PART 2 - PRODUCTS: Not Used.

#### PART 3 - EXECUTION

- 3.1 MATERIALS AND PRODUCTS: The materials and products installed in the work shall meet the requirements of the contract documents and no materials or products shall be ordered until reviewed by the Engineer. The Contractor shall guarantee all materials and products provided as required by the Contract Documents.
  - A. Substitutions: In order to establish standards of quality, the Engineer has referred to certain products by name and catalog number throughout the specifications. This procedure is not to be construed as eliminating from competition other products of equal or better quality by other manufacturers, where fully suitable in design.
    - 1. The Contractor shall abide by the Engineer's recommendation when proposed substitute materials or items of equipment are not approved for installation and shall furnish the specified material or product in such case. All requests for substitutions shall be submitted in writing by the Contractor and not by individual trades or material suppliers. The Engineer will review proposed substitutions and make their recommendations in writing within a reasonable time.
    - 2. Where products and material manufacturers are listed and the terms "or equal" or "or approved equal" are used in the specifications, the Contractor may submit shop drawing information for substitute products or materials provided that such proposed products and materials meet the quality and functionality of the Specifications. The Engineer reserves the sole right to approve such substitutions as equal based on a fair evaluation and assessment of the data presented and the Contractor shall agree to abide by this decision. Should the materials not be considered equal to those specified, the Contractor shall, at their expense, resubmit for approval based on one of the specified manufacturers.
  - B. Space Requirement: It shall be the responsibility of the Contractor to ensure that materials and products to be furnished fit the space available. He shall make necessary field measurement to ascertain space requirements, including those for connections, and shall order such sizes and shapes of material and products such that the final installation shall suit the true intent and meaning of the Contract Documents.
  - C. Arrangement: Where materials and products requiring different arrangement of connections from those shown is approved, it shall be the responsibility of the Contractor to install the materials and products to operate properly and in harmony with the intent of the Contract Documents, and to make all changes in work required by such arrangement.

MATERIALS, PRODUCTS AND WORKMANSHIP SECTION 01 62 00 Page 1 of 2

- D. Unacceptable Materials and Products: Materials and products which do not conform to the requirements of the Contract Documents, or are not equal to samples reviewed by the Engineer, or are in any way unsatisfactory or unsuited to the purpose for which they are intended, shall not be furnished or installed.
- E. Manufacturer's Directions: Manufactured products and, materials shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.
- 3.2 REJECTED WORK AND MATERIALS: Any defective work whether the result of poor workmanship, use of defective materials, damage through carelessness or any other cause shall be removed within ten days after written notice is given by the Owner, and the work shall be re-executed by the Contractor.
- 3.3 CUTTING AND PATCHING: The Contractor shall do all necessary cutting and patching of the work that may be required to properly receive the work of the various trades or as required by the Drawings and Specifications to complete the work. He shall restore all such cut or patched work as approved by the Engineer. Cutting of structures that may endanger the work, adjacent property, workmen or the public shall not be done.
- 3.4 Character of Workmen: The Contractor shall at all times be responsible for the conduct and discipline of their employees and/or any Subcontractor or persons employed by Subcontractors. All workmen must have sufficient knowledge, skill, and experience to properly perform the work assigned to them. Any foreman or workman employed by the Contractor or Subcontractor who does not perform their work in a skillful manner or appears to be incompetent or to act in a disorderly or intemperate manner shall, at the written request of the Owner, be discharged immediately and shall not be employed again in any portion of the work without the approval of the Owner.

## **END OF SECTION**

# PRODUCT DELIVERY, STORAGE AND PROTECTION SECTION 01 66 00

### PART 1 - GENERAL

1.1 APPLICABILITY: This section applies to all products furnished under this Contract. Shipments of products or materials to be used by the Contractor or its Subcontractors shall be delivered to the site only during regular working hours. All shipping papers and shipments shall be addressed and consigned to the Contractor giving the name of the Project with address.

#### 1.2 DELIVERY

- A. Products shall not be delivered to the project site until related shop drawings have been reviewed by the Engineer.
- B. Products shall not be delivered to the project site until appropriate storage facilities are in place.
- C. Products shall be delivered to the site in manufacturer's original, unopened, labeled containers.
- D. The Contractor shall not drop, roll or skid products off delivery vehicles. Rather, suitable materials handling equipment shall be used to unload products.
- E. The Contractor is responsible for receiving, unloading, freight and demurrage of products.

### 1.3 STORAGE AND PROTECTION

- A. GENERAL
  - 1. The Contractor shall store and protect products in accordance with the manufacturer's recommendations and the requirements specified herein. All on-site facilities for storage shall be furnished by the Contractor.
  - 2. The Contractor shall not block or restrict the use of public right of way, access roads or private property with stored materials.
  - 3. The Contractor shall not store products where they will interfere with operations of the Owner or other contractors.
  - 4. The Contractor shall protect all products from damage or deterioration by weather.
  - 5. The Contractor shall not store any products which could be so damaged directly on the ground.
  - 6. The Contractor shall not store any products in drainage ditches or areas where water may flow or stand.
  - 7. The Contractor shall label containers to identify materials inside using the terminology found in these specifications.

## END OF SECTION

# PROJECT RECORD DOCUMENTS SECTION 01 78 39

## PART 1 - GENERAL

- 1.1 CONTRACTOR REQUIREMENTS
  - A. The Contractor shall prepare, keep, and provide to the Engineer and Owner, in the manner described herein, all Project Record Documents required by this specification and other Contract Documents, and the cost of doing so shall be covered by the Project Record Documents pay item. No other payment for the labor, materials, and Work necessary to comply with the above statement shall be made.
  - B. The Contractor shall maintain and keep current one (1) clean, dry, legible hard copy of the As-Built Drawings (see further description below) at the Contractor's office located on Site, and this copy shall be made available at all times for inspection by the Engineer, Owner, and their respective representatives, and any other agencies that may need to approve the Work.

#### **PART 2 - DEFINITIONS**

### 2.1 PROJECT RECORD DOCUMENTS

A. The Project Record Documents shall include all Record Documents defined in the Standard General Conditions of the Construction Contract as well as all Project Record Documents defined and described here in this specification.

### **PART 3 - PROJECT RECORD DOCUMENTS**

- 3.1 AS-BUILT DRAWINGS
  - A. The As-Built Drawings shall be comprised of a hard copy printout of the complete official Drawings, as amended, that includes all of the Contractor's handwritten annotations which describe all as-built differences and changes between the official Drawings and the Work as it has been constructed.

#### 3.2 CERTIFIED AS-BUILT DRAWINGS

- A. The Certified As-Built Drawings shall be comprised of a single Portable Document Format ("PDF") file which is stamped and certified by a Professional Surveyor duly licensed in the State of Indiana. The Certified As-Built Drawings shall utilize the same horizontal and vertical datums used in the official Drawings. The Certified As-Built Drawings file shall include the original official Drawings overlaid with annotations made in red colored text and markings which show any as-built differences or changes from the original, official Drawings. The following is a non-exhaustive list of information that shall be shown on the Certified As-Built Drawings:
  - i. All changes in diameter or material of any pipes
  - ii. All changes to the proposed coordinates or diameter of any structure
  - iii. All changes to the invert elevation of any pipe
  - iv. All final coordinates of sanitary sewer lateral wyes and end caps as well as the route of the lateral between the wye and the end cap
  - v. All final coordinates of new trees
  - vi. All final coordinates of new/replaced water meter pits
  - vii. All final coordinates of new and relocated signs
  - viii. All final coordinates of water main valves and fittings

- ix. The final alignment and depths of all horizontally directionally drilled pipes
- x. All changes to equipment

## 3.3 AS-BUILT AUTOCAD DRAWINGS

A. The Contractor shall provide to the Engineer and Owner a single AutoCAD file with ".dwg" file extension that shows all corresponding information required to be shown on the Certified As-Built Drawings. This file shall utilize the same horizontal and vertical datums used in the official Drawings. The file shall contain coordinate geometry points that represent all non-linear items.

## 3.4 PRE-CONSTRUCTION VIDEO

- A. The Pre-Construction Video shall be comprised of a video file or files which together document the Site conditions prior to the Contractor's commencement of any other Work. The purpose of this video shall be to ensure that claims regarding disturbances to existing real property can easily be confirmed or disputed using the Pre-Construction Video.
- B. The Pre-Construction Video shall have the following properties:
  - i. It shall be created by a third party professional sub-contractor that routinely creates and prepares videos of this type for their clients.
  - ii. It shall be in 4k Ultra HD (4K UHD) video resolution (e.g., 3842 x 2160) in the MP4 (i.e., MPEG-4 Part 14) video format and captured in the Landscape orientation (i.e., width dimension is larger than height dimension).
  - iii. It shall clearly depict the condition of all existing improvements within the public right-ofway and Site, especially where proposed work is to occur, and especially where existing objects and structures are cracked or damaged. A non-exhaustive list of items and objects to be capture and inspected on video is as follows: Streets, Alleys, Driveways, Sidewalks, Parking areas, Lawns and landscaping areas, Fences, Trees, and Retaining walls.
  - iv. The video shall clearly show all addresses marked on homes and/or mailboxes such that the video's viewpoint, orientation, and perspective can be easily ascertained by only watching the video. The video should zoom in on mailboxes or addresses marked on homes such that these addresses are clearly visible and video captured before and after the zooming is continuous. If the video is not continuous and contains starts and stops, the video shall include annotations describing the exact location of where the video starts such that the video's viewpoint, orientation, and perspective can be easily known.
  - v. The video may include audio narration to describe objects being shown or inspected.
  - vi. The video shall include an index and brief description of how the video files are organized such that finding specific addresses within the video file is time-efficient and straightforward.

### PART 4 - SUBMITTALS

- 4.1 SUBMITTAL REQUIREMENTS
  - A. The Contractor shall deliver to the Engineer the Pre-Construction Video prior to commencing with any other Work.
  - B. The Contractor shall deliver all Project Record Documents to the Engineer before making an application for Final Payment.

# ALTERNATES SECTION 01 79 00

## PART 1 - GENERAL

- 1.1 <u>SUMMARY</u>
  - A. This specification defines the alternates that are included in the Bidding Package for this project and provides clarifying remarks and administrative, procedural, and other requirements that apply to the alternates.
  - B. The alternates included in this Bidding Package are defined below in the Schedule of Alternates section.

## 1.2 DEFINITIONS

- A. Alternate
  - i. A grouping of alterations such as additions, subtractions, or modifications to the scope of work described in the base bid project that require alternative unit price bids from the contractor.

## PART 2 - PROCEDURES

- 2.1 BIDDING
  - A. Each bidder shall provide bids to complete all the alternates included in this Bidding Package. See the Instructions to Bidders and the Bid Form for more information regarding the specific requirements of the Bidders.

## 2.2 SELECTION OF ALTERNATES BY OWNER

A. The Owner will decide which alternates are to be included in the construction contract.

## 2.3 CONSTRUCTION CONTRACT

- A. The construction Contract will include all work included in the base bid as well as all work included in any alternate chosen to be included in the construction contract by the Owner.
- B. Work included in alternates that are not chosen to be included in the construction contract shall not be included in the construction contract.

## PART 3 - SCHEDULE OF ALTERNATES

## 3.1 <u>BASE BID</u>

- A. All required work shown in the Drawings within the project limits that is itemized for payment on the Base Bid portion of the Itemized Bid Form.
- 3.2 ALTERNATE 1
  - A. All required work shown in the Drawings within the project limit that is itemized for payment on the Alternate 1 portion of the Itemized Bid Form.
  - B. A general summary of this work is as follows:
    - i. This alternate comprises all work along alignment Line 1, from STA 0+00 to STA 5+10.80 as delineated in Sheet C-02.

## 3.3 ALTERNATE 2

- A. All required work shown in the Drawings that is itemized for payment on the Alternate 2 portion of the Itemized Bid Form.
- B. A general summary of this work is as follows:
  - i. This alternate comprises the replacement of the Structure 5: The 1200-gallon concrete drywell in the base bid is to be replaced with hydrodynamic separator (Cascade Separator-C-10).

# MANHOLE WATERPROOFING SECTION 33 06 00

# PART I – GENERAL

## 1.00 DESCRIPTION:

The work described herein details a complete program for wastewater structure lining and rehabilitation. This specification details the methods, procedures, materials and equipment required to produce "A Total Lining System for Wastewater Structures". The completed system will provide a corrosion resistant liner that restores the surface profile and eliminates water infiltration and exfiltration.

## **1.01 APPLICABILITY:**

All sanitary manholes constructed as part of this project that are located within eight (8) ft of a water main as measured from the outside edge of the sanitary sewer manhole to the outside edge of the water main per Indiana Administrative Code "327 IAC 3-6-9(c)" shall comply with this "Manhole Waterproofing" specification.

## 1.02 REFERENCES:

- A. ASTM D7234 Adhesion
- B. ASTM D412 Tensile Strength (PSI)
- C. ASTM D412 Elongation (%)
- D. ASTM D624 Tear Strength (PLI)
- E. ASTM D2240 Hardness
- F. ASTM D522 Flexibility (1/8" mandrel)
- G. ASTM D4060 Taber Abrasion (mg loss)

# 1.03 SUBMITTALS

All materials and procedures required to establish compliance with the specifications shall be submitted upon request to the owner/engineer for review/approval. Submittals shall include at least the following:

- 1. Technical Data Sheet on each product used.
- 2. Safety Data Sheet (SDS) for each product used.
- 3. Manufacturer's Certification of Applicator.
- 4. Certified Applicator Minimum Qualifications (Section 1.04 D).
- 5. Descriptive literature, bulletins and or catalogs of materials.
- 6. Work procedures including flow diversion plan, method of repair, etc.
- 7. Material and method for repair of leaks or cracks in the structure.
- 8. Applicator and Manufacturer warranty forms (Section 4.01)

# **1.04 QUALITY ASSURANCE**

A. The manufacturer of the total lining system for wastewater structures shall be a company that specializes in the design and manufacture of corrosion protection materials / systems for wastewater structures.

B. The applicator (company performing the installation) shall be completely trained in leak repair, surface preparation and application of the lining system.

C. The materials/products shall be suitable for installation in a wastewater environment without any deterioration of the liner.

D. The applicator shall be trained and provide a letter of certification from the manufacturer for the handling, mixing, application, and inspection of the liner system as described herein.

E. To ensure total unit responsibility, all materials and installation thereof shall be furnished and coordinated by manufacturer/certified applicator.

# **PART II - PRODUCTS**

# 2.01 MATERIALS AND EQUIPMENT

A. The materials to be utilized in the lining of wastewater structures shall be designed and manufactured to withstand the severe effects a wastewater environment. The manufacturer of the corrosion protection products shall have at least 10 years of experience in the production of the lining products utilized, and the products shall have satisfactory installation record.

B. Equipment for installation of lining materials shall be of high quality and as recommended by the manufacturer.

C. The lining system to be utilized for wastewater structures shall be a multi-layer 'stress skin panel' liner system as described below:

Liner.
 Installation Liner
 Moisture barrier Modified Polymer (Silicone modified polyurea)
 Surfacer Polyurethane/Polymeric blend foam
 Final corrosion barrier Modified polymer (Silicone modified Polyurea)

2. The Modified polymer (silicone modified polyurea) shall be sprayable, solvent free, twocomponent polymeric, moisture/chemical barrier specifically developed for the corrosive wastewater environment.

3. The Polyurethane Rigid Structure Foam, shall be low viscosity two-component, containing flame retardants.

4. Total thickness of multi-layer liner system shall be a minimum of 500 mils.

D. The product shall be SPECTRASHIELD, manufactured by CCI Spectrum, Inc.

# PART III - EXECUTION

## **3.01 INITIAL INSPECTION**

A. Applicator shall take appropriate action to comply with all local, state, and federal regulations including those set forth by OSHA, EPA, the Owner and any other applicable authorities.

B. Prior to conducting any work, an initial inspection of the structure shall be performed to determine need for protection against hazardous gases or oxygen depleted atmosphere and the need for flow control or flow diversion.

C. If required, submit a plan for flow control or bypass to the owner/engineer for approval prior to conducting the work.

D. New Portland cement structures shall have endured a minimum of 28 days since manufacture prior to commencing installation of the liner system.

# **3.02 SURFACE PREPARATION**

A. The surface preparation program will include checking the atmosphere for hydrogen sulfide, methane, low oxygen, or other gases, approved flow control equipment, and surface preparation equipment.

B. Surface preparation for standard manhole structures shall be in accordance with the manufacturer's recommendations, and may include high pressure water cleaning and shall provide a surface compatible for installation of the liner system.

C. Surface preparation and methods for other structures shall be in accordance with the manufacturer's recommendations, and may include high pressure water cleaning, hydro blasting, abrasive blasting, grinding, or detergent water cleaning, and shall be suited to provide a surface compatible for installation of the liner system.

D. The surface preparation method shall produce a cleaned, abraded and sound surface with no evidence of laitance, loose concrete, loose brick, loose mortar, contaminants or debris, and shall display a surface profile suitable for application of the liner system in accordance with the manufacturer's recommendations.

E. After completion of surface preparation, perform the seven point check list, inspecting for:

- 1. Leaks 5. Ring and Cover condition
- 2. Cracks 6. Invert Condition
- 3. Holes 7. Inlet and Outlet Pipe Condition
- 4. Exposed Rebar

F. After the defects in the structure are identified, repair all leaks and severe cracks with Spectra-Grout, or other methods approved by the manufacturer.

G. Upon completion of leak and crack repair, the surface shall be primed in accordance with the manufacturer's recommendations.

## 3.03 MATERIAL INSTALLATION

A. Application procedures shall conform to recommendations of the manufacturer, including materials handling, mixing, environmental controls during application, safety and spray equipment.

B. Spray equipment shall be specifically designed to accurately ratio and apply the liner system.
C. Application of multi-component liner system shall be in strict accordance with manufacturer's recommendation. Final installation minimum total thickness shall be 500 mils. A permanent identification and date of work performed shall be affixed to the structure in a readily visible location.

D. If requested a final written report may be provided to the owner/engineer detailing the location, date of work and description of the work.

### **3.04 FINAL INSPECTION**

A. Final liner system shall be completely free of pinholes or voids. Liner thickness shall be the minimum value as described herein.

B. Visual inspection may be made by the Owner/Engineer. Any deficiencies in the finished liner system shall be marked and repaired according to the procedures set forth by the manufacturer.

### 4.01 WARRANTY

Applicator and Manufacturer must warrant the liner system installation against failure for a period of 10 years from the installation date. Applicator shall correct failures any time prior to 10 years after the installation date. Failure will be deemed to have occurred if the protective liner fails to: (a) prevent the internal corrosion of the structure or (b) prevent groundwater infiltration. Failure does not include damage resulting from mechanical force or the presence of chemical substances not customarily present or used in Wastewater Structures, defects in the workmanship or devises of others upon which the Wastewater Structure functions or act of God. The liner must be installed in accordance with Manufacturer's instructions by Applicators certified by Manufacturer. Executed 10-year Applicator and Manufacturer warranties are to be provided upon completion of work.

# STORM WATER TREATMENT DEVICE (CASCADE SEPARATOR: CS-10) SECTION (33 14 00)

### 1.0 GENERAL

- 1.1 This item shall govern the furnishing and installation of the Cascade Separator® by Contech Engineered Solutions LLC, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents.
- 1.2 The Contractor shall furnish all labor, equipment and materials necessary to install the storm water treatment device(s) (SWTD) and appurtenances specified in the Drawings and these specifications.
- 1.3 The manufacturer of the SWTD shall be one that is regularly engaged in the engineering design and production of systems deployed for the treatment of storm water runoff for at least five (5) years and which have a history of successful production, acceptable to the Engineer. In accordance with the Drawings, the SWTD(s) shall be a Cascade Separator[™] device manufactured by:

Contech Engineered Solutions LLC 9025 Centre Pointe Drive West Chester, OH, 45069 Tel: 1 800 338 1122

- 1.4 All components shall be subject to inspection by the engineer at the place of manufacture and/or installation. All components are subject to being rejected or identified for repair if the quality of materials and manufacturing do not comply with the requirements of this specification. Components which have been identified as defective may be subject for repair where final acceptance of the component is contingent on the discretion of the Engineer.
- 1.5 The manufacturer shall guarantee the SWTD components against all manufacturer originated defects in materials or workmanship for a period of twelve (12) months from the date the components are delivered to the owner for installation. The manufacturer shall upon its determination repair, correct or replace any manufacturer originated defects advised in writing to the manufacturer within the referenced warranty period. The use of SWTD components shall be limited to the application for which it was specifically designed.
- 1.6 The SWTD manufacturer shall submit to the Engineer of Record a "Manufacturer's Performance Certification" certifying that each SWTD is capable of achieving the specified removal efficiencies listed in these specifications. The certification shall be supported by independent third-party research
- 1.7 No product substitutions shall be accepted unless submitted 10 days prior to project bid date, or as directed by the Engineer of Record. Submissions for substitutions require review and approval by the Engineer of Record, for hydraulic performance, impact to project designs, equivalent

treatment performance, and any required project plan and report (hydrology/hydraulic, water quality, stormwater pollution) modifications that would be required by the approving jurisdictions/agencies. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

#### 2.0 MATERIALS

- 2.1 Housing unit of stormwater treatment device shall be constructed of pre-cast or cast-in-place concrete, no exceptions. Precast concrete components shall conform to applicable sections of ASTM C 478, ASTM C 857 and ASTM C 858 and the following:
  - 2.1.1 Concrete shall achieve a minimum 28-day compressive strength of 4,000 pounds per square-inch (psi);
  - 2.1.2 Unless otherwise noted, the precast concrete sections shall be designed to withstand lateral earth and AASHTO H-20 traffic loads;
  - 2.1.3 Cement shall be Type III Portland Cement conforming to ASTM C 150;
  - 2.1.4 Aggregates shall conform to ASTM C 33;
  - 2.1.5 Reinforcing steel shall be deformed billet-steel bars, welded steel wire or deformed welded steel wire conforming to ASTM A 615, A 185, or A 497.
  - 2.1.6 Joints shall be sealed with preformed joint sealing compound conforming to ASTM C 990.
  - 2.1.7 Shipping of components shall not be initiated until a minimum compressive strength of 4,000 psi is attained or five (5) calendar days after fabrication has expired, whichever occurs first.
- 2.2 Internal Components and appurtenances shall conform to the following:
  - 2.2.1 Hardware shall be manufactured of Type 316 stainless steel conforming to ASTM A 320;
  - 2.2.2 Support brackets shall be manufactured of 5052 aluminum
  - 2.2.3 Fiberglass components shall conform to applicable sections of ASTM D-4097
  - 2.2.4 Access system(s) conform to the following:
  - 2.2.5 Manhole castings shall be designed to withstand AASHTO H-20 loadings and manufactured of cast-iron conforming to ASTM A 48 Class 30.

### **3.0 PERFORMANCE**

3.1 The SWTD shall convey the flow from the peak storm event of the drainage network, in accordance with required hydraulic upstream conditions as defined by the Engineer. If a substitute SWTD is proposed, supporting documentation shall be submitted that demonstrates equal or better upstream hydraulic conditions compared to that specified herein. This documentation shall be signed and sealed by a Professional Engineer registered in Indiana. All costs associated with preparing and certifying this documentation shall be born solely by the Contractor.

#### 4.0 EXECUTION

4.1 The contractor shall exercise care in the storage and handling of the SWTD components prior to

and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the contractor.

- 4.2 The SWTD shall be installed in accordance with the manufacturer's recommendations and related sections of the contract documents. The manufacturer shall provide the contractor installation instructions and offer on-site guidance during the important stages of the installation as identified by the manufacturer at no additional expense. A minimum of 72 hours notice shall be provided to the manufacturer prior to their performance of the services included under this subsection.
- 4.3 The contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface consistent with adjacent surfaces. The contractor shall trim all protruding lifting provisions flush with the adjacent concrete surface in a manner, which leaves no sharp points or edges.
- 4.4 The contractor shall removal all loose material and pooling water from the SWTD prior to the transfer of operational responsibility to the Owner.

#### 5.0 BASIS OF PAYMENT

- 5.1 INDOT #8 Limestone bedding shall be paid for by its respective Pay Item and is not included in the cost of the structure.
- 5.2 All components of the SWTD shall be included in the cost of the structure.
- 5.3 Iron castings and frames shall be included in the cost of the structure.
- 5.4 Adjustment of structure to final plan grade shall be included in the cost of the structure.
- 5.5 Pipe and any associated pipe-related work shall not be included in the cost of the structure.
- 5.6 This Work shall be paid for as a lump sum pay item.

TADLE T. SUUT	water meatiment bevice	Siviage Capacilies
	Minimum Sump Storage	
Cascade Model	Capacity (vd ³ )	Minimum Oil Storage
	oupdony (ju )	Capacity (gal)
CS-4	0.70	141.0
CS-5	1.09	269.3
CS-6	1.57	475.9
CS-8	2.79	1128.0
CS-10	4.36	2203.2
CS-12	6.28	3807.1

## TABLE 1: Storm Water Treatment Device Storage Capacities

**END OF SECTION** 







Town of Long Beach C/o Haas & Associates 526 Franklin Square Michigan City, IN 46360

#### RE: Geotechnical Exploration Stop 17 Stormwater Drainage Improvements Long Beach, Indiana

Gentlemen:

Weaver Consultants Group has completed our geotechnical exploration of the subsurface soil and groundwater conditions at Stop 17, adjacent to Lake Shore Drive in the Town of Long Beach. The purpose of the exploration was to evaluate the subsurface soil and groundwater conditions to improve drainage during rain and snowmelt events.

As requested, on September 17, 2020, four soil borings 15 feet deep, were drilled in the areas depicted on the attached boring location plan. The number, depths, and general location of the soil borings were chosen by Haas and Associates. The boreholes were subsequently backfilled with sand and a concrete patch was placed in the areas drilled through the concrete.

#### **Subsurface Conditions**

Our interpretation of the subsurface conditions are based on four (4) soil borings extended to a depth of 15 feet below the existing ground surface. The following is a general discussion of the subsurface conditions, for more specific information, refer to the attached boring logs.

Generally, three main soil/material types were encountered at the site and they are described in the following section:

- **Concrete** A surficial layer of concrete was found at the locations of Borings SB-2, SB-3, and SB-4. The concrete layer was a part of a parking area for Stop 17 and the nearby residential properties. The concrete layer was approximately 4 to 6 inches thick.
- **Topsoil and Rubble** A mixture of topsoil and brick/concrete rubble was found at the surface layer of the Boring SB-1. The topsoil-rubble layer was approximately 3 feet deep and was located in the grassy area in front of the residence at 1636 Lake Shore Drive.
- **Poorly Graded Sand (SP)** The soil beneath the concrete surface and the topsoil and rubble fill consisted of a poorly graded sand (SP) to the terminal depth of the soil borings at 15 feet below the surface. The soil was described as light brown fine to medium (SP). The relative density of the soil was described as loose to

Geotechnical Evaluation Stop 17 Stormwater Drainage Improvements, Long Beach, Indiana Page 2 of 4

very loose to a depth of 8 to 10 feet then mostly medium dense below 10 feet from the existing surface.

#### **Groundwater Conditions**

Groundwater level observations noted during and after completion of the drilling operations are recorded on the boring logs. Groundwater was observed to be 10 to 10.5 feet below the existing surface at the completion of the borings. Fluctuations in the water table should be anticipated throughout the year with variations in precipitation and other environmental or physical factors.

Additionally, it is our opinion the water table is directly affected by the water level of Lake Michigan.

#### Laboratory Testing

The laboratory testing program included visual soil classification and grain size analysis of two (2) selected samples. The grain size analysis results are attached with this report. The results of the grain size analyses were used to estimate the infiltration rate based on particle size using the Hazen formula. The Hazen formula used to estimate infiltration rates for those soils having 10 percent or less passing the No. 200 sieve, SP and SP-SM classified soils.

#### **Infiltration Estimates**

Tabulated below are the results of our study and the estimated infiltration rates obtain along with design correction factor results to be used for design purposes.

Boring No.	Depth (ft)	Infiltration Rate (in/hr)	Correction Factor	Design Rate (in/hr)	Soil Classification
SB-3	6-7.5	45.7	0.33	15.1	Loose, moist, light brown, fine to medium, SAND (SP)
SB-4	8.5-10	42.9	0.33	14.2	Loose, wet, light brown, fine to medium, SAND (SP)

T-LL-	1 .	T. Cline Atom	Data	Dand	121212	Dentiale	C!	(III amon	Foundar)
able		Inflitration	кате	based	on	Particle	Size	снахен	rormula
								(	

The depth to the groundwater, amount of stormwater anticipated, soil conditions and the area needed to contain the stormwater while it infiltrates are all contributing factors to consider providing an adequate working infiltration system.

#### Discussion

Subsurface variations can exist at a site which may not be indicated by a dispersed boring program. If such variations or unexpected conditions are encountered during construction, or if the project information is incorrect or changed, we should be informed immediately since the validity of our recommendations may be affected.

Geotechnical Evaluation Stop 17 Stormwater Drainage Improvements, Long Beach, Indiana Page 3 of 4

We understand during heavy rain events and snowmelt the area around Stop 17 floods and has standing water issues due to abundant hard surface areas (i.e. concrete parking areas and asphalt roadways). Additionally, we understand the residence at 1636 Lake Shore Drive has experienced flooding and wet conditions at the lower level of the residence. The flooding is more evident when the Lake Michigan lake level is high.

The soils in all borings were generally classified as fine to medium sand (SP) from the surface to the terminal depth of the soil borings at 15 feet below the existing surface. Based on our borings and grain size analysis of the soil conditions, the soils classified as fine to medium sands (SP) exhibit relatively fast infiltration rates. Which one should they use

No elevations of the water level in Lake Michigan or the lower level of the residence at 1636 Lake Shore Drive were available. However, based on our cursory observation and the soil conditions encountered, it appears the groundwater level indicated from the soil borings and the water level in Lake Michigan are related. As previously mentioned, it is our opinion the groundwater mimics the lake level.

To mitigate the flooding and standing water during heavy rain events and snowmelt an infiltration system could be installed below the hard surface with catch basins directing the surface water to the more permeable soil conditions below. We have provided estimated soil infiltration rates for calculations of flow through the soil. However, by introducing surface water from rain and snowmelt events, the groundwater will temporarily rise in the immediate area possibly causing adverse flooding of the lower levels of the nearby residences. More extensive elevation data of the lower levels of the nearby residences should be collected before considering an infiltration system to determine the effect a rise in the water table will have on the nearby residences.

The other option is to install a catch basin system, connected to a stormwater conduit that will directly pipe the excess stormwater to Lake Michigan. This would prevent the excessive stormwater and snowmelt from infiltrating into the permeable soil conditions in the area and possibly causing flooding of the nearby residences.

Attached to this report are the grain size analyses of the collected soil types, the logs of the four (4) borings, and the boring location plan indicating the approximate locations of the soil borings.

Geotechnical Evaluation Stop 17 Stormwater Drainage Improvements, Long Beach, Indiana Page 4 of 4

We trust this information is sufficient for your needs at this time, if you have any questions or if we can be of further assistance please contact this office.

Sincerely, Weaver Consultants Group

John J. Wan-

John J. Warner, LPG Sr. Project Manager

5 lds

Antonio Soldo, PhD Staff Geotechnical Engineer

Attachments: Soil Boring Logs (4) Grain Size analysis (2) Boring Location Plan

		Weaver Cons 7121 Grape Road, 574-271-3447(Phone	<b>ultants Group</b> Granger, IN 46530 )/574-271-3343(Fax)		Fi	le N	L 0.: _	OG OF SOI	L B Lo	OR cati	AING on:	NO.: <u>SB-1</u> Sheet I	of
8	WATI NE =	ER LEVEL DATA Not Encountered	Started: <u>9/17/2020</u> Completed: <u>9/17/2020</u> Geologist: J. Warner		PR	OJE	CT:	Stop 17 Stormwa Long Beach, Indi	iter I ana	Drain	age Im	provements	
9.5	ft A ft A ft A	t Completion** ⊻ t Hrs. A.D.* t Days. A.D.***	Driller: <u>D. Wisniewsk</u> Drilling Equip.: <u>Geoprobe</u> Drilling Method: <u>Pushed Casing</u>	i	C	LIEÌ	VT:	Haas & Associat Michigan City, In	es ndiar	na			
th (ft)	DAT	UM: SURFAC	TE ELEVATION (ft) +/-:	ta Depth (ft)	e	overy	nber	Standard Penetration Test-Blows/6" (#)= "N" Value	(%)	(tsf)	isture itent %	BORING AND SAMPLING NOTES	
Dep	Syn Syn	Rubble and topsoil		Stra	Typ	Rec	Nur		LOI	ď	Cor		
-2					X		1					Auger Boring	
-4	<u></u>	Loose, moist, light b SAND (SP)	rown, FINE TO MEDIUM	3.5	X		2	3/3/5 (8)					-
- 		W		80	X		3	3/2/5 (7)					
		Very loose, wet, ligh SAND (SP) ⊻	t brown, FINE TO MEDIUM	8.0	X		4	3/1/2 (3)				Cave-In Depth: 9.5 ft	
- 		Medium dense, wet, MEDIUM SAND (SF	brown-gray, FINE TO	12.5	X		5	0/0/0 (0)					
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- 16													
-18													
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		Weaver Cons 7121 Grape Road, 574-271-3447(Phone	ultants Group Granger, IN 46530 )/574-271-3343(Fax)		Fi	ile N	L	OG OF SOII	L B Lo	OR cati	RING on:	NO.: <u>SB-2</u> Sheet 1	of l
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	5 ft / _ ft / _ ft /	At Completion ** $\underline{x}$ At Hrs. A.D.* At Days. A.D.***	Driller: <u>D. Wi</u> Drilling Equip.: <u>Geop</u> Drilling Method: <u>Pushe</u>	robe	0	CLIE	VT:	Haas & Associate Michigan City, Ir	es ndiar	na			
	DAT	TUM: SURFAC	E ELEVATION (ft) +/-:	h (ft)				Standard					(Ų)
Depth (ft)	Symbol	SOIL DESCRIPT and USCS or AAS	ION, CLASSIFICATION SHTO GROUP SYMBOI	Strata Dept	Type	Recovery	Number	Penetration Test-Blows/6" (#)= "N" Value	LOI (%)	Qp (tsf)	Moisture Content %	BORING AND SAMPLING NOTES	Elevations
2		Concrete Loose, moist, light b SAND (SP)	rown, FINE TO MEDIUM	0.5	X		1	5/3/2 (5)					
- 4 -		Medium dense, moi: MEDIUM SAND (SF	st, light brown, FINE TO	3.0	X		2	4/5/5 (10)					
-6 - - -8		Loose, wet, light bro	wn. FINE TO MEDIUM	8.0	X		3	7/5/6 (11)					
- 10		SAND (SP)		10.5	X		4	4/1/3 (4)				Cave-In Depth: 10.5 ft	
- - 		Medium dense, wei, MEDIUM SAND (SF	light brown, Fine TO ))		X		5	3/5/4 (9)					
1 14 02/05/6 145-00		Boring Terminated a	ıt 15 ft	15.0	X		6	4/7/11 (18)					
IG BEACH INDIANA 1083-427-19-0													-
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	Weaver Consultants Group 7121 Grape Road, Granger, IN 46530 574-271-3447(Phone)/574-271-3343(Fax)	F	ile N	L o.: _	OG OF SOII	L B Lo	OR cati	an:	NO.: <u>SB-3</u> Sheet 1	of 1
<u>10.5</u>	WATER LEVEL DATA NE = Not Encountered     Started: 9/17/2020       5     ft While Drilling     ▼       5     ft At Completion**     ✓	— PF	ROJE	CT:	Stop 17 Stormwa Long Beach, Indi	iter I ana	Drain	age Im	provements	
	tt AtHrs. A.D.* Drilling Equip.: <u>Geoprobe</u> ft AtDays. A.D.*** Drilling Method: <u>Pushed Casing</u>	_	CLIE	NT:	Haas & Associate Michigan City, Ir	es ndiar	ia			
Depth (ft)	DATUM:     SURFACE ELEVATION (ft) +/-:     4400       Image: Construction of the second seco	Strata Deptn (III) Type	Recovery	Number	Standard Penetration Test-Blows/6" (#)= "N" Value	LOI (%)	Qp (tsf)	Moisture Content %	BORING AND SAMPLING NOTES	Elevations (ft)
-2	Concrete Loose to medium dense, moist, light brown, FINE TO MEDIUM SAND (SP)	0.5		1	3/3/3 (6)					-
-4		X		2	2/3/5 (8)				T.	-
		X		3	4/3/4 (7)					-
- - 	Very loose, wet, light brown, FINE TO MEDIUM	0.5		4	4/4/5 (9)			ð	Cave-In Depth: 10.5 ft	-
- - - 12 -	SAND (SP)	3.0		5	1/0/1 (1)					_
- 14 - 14	MEDIUM SAND (SP)  Boring Terminated at 15 ft	5.0		6	5/8/12 (20)					-
H INDIANA 1083-427-19-00 1 1 1 1 1 1 1 1 8 91 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1										-
ONG BEACI										-
LC-ELEVATIONS +/- I	<u>TES:</u> 1. Weather: 63° Sunny 2. Used automatic hammer 3. Backfilled with sand 4. Concrete Patch at surface			= Au = Ge = Gr	nger ( coprobe ab Sample		<u>LEC</u> = No = Cor = She	<u>JEND</u> Recove e Sampl lby Tub	ry $$ = Split-Spoon S le $$ = Vane Shear T e	Sample Fest

		Weaver Cons 7121 Grape Road, 574-271-3447(Phone	<b>ultants Gro</b> Granger, IN 4653 )/574-271-3343(F	up ₀ ax)		Fi	le N	L o.: _	OG OF SOI	L B Lo	OR cati	ING on:	NO.: <u>SB-4</u> Sheet 1	of l
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	ft/ ft/	AtHrs. A.D.* AtDays. A.D.***	Drilling Equip.: Drilling Method:	Geoprobe Pushed Casing		C	LIE	VT:	Haas & Associate Michigan City, Ir	es ndian	a			
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Depth (ft)	Symbol	SOIL DESCRIPT and USCS or AAS	ION, CLASSIFICA SHTO GROUP SYN	TION /IBOL	Strata Depth	Type	Recovery	Number	Standard Penetration Test-Blows/6" (#)= "N" Value	LOI (%)	Qp (tsf)	Moisture Content %	BORING AND SAMPLING NOTES	Elevations (
-2		Concrete Very loose to loose, MEDIUM SAND (SF	moist, light brown, ')	FINE TO	0.3	X		1	5/3/3 (6)					-
- 4						X		2	2/2/1 (3)					
-6						X		3	2/1/2 (3)					
- 10		Very loose to loose, MEDIUM SAND (SF ⊻	wet, light brown, Fl ')	NE TO	9.0	X		4	3/4/4 (8)				Cave-In Depth: 10 ft	
						X		5	4/5/5 (10)					
GP1 9/30/20		Boring Terminated a	at 15 ft		. 14.5	X		6	3/5/18 (23)				At 14.5 ft root was hit	
NDIANA 1083-427-19-00														
LONG BEACH II												10,10		-
LLC-ELEVATIONS +/-	<u>DTES:</u> 1. Weat 2. Used 3. Backt 4. Conc	her: 63° Sunny automatic hammer illed with sand rete Patch at surface						= Au = Ge = Gr	ıger ( coprobe rab Sample	= = =	<u>LEC</u> = No = Cor = She	r <u>END</u> Recover e Sampl Iby Tub	ry $$ = Split-Spoon le $$ = Vane Shear e	Sample Test



Tested By: AS

			GR	AIN SIZE	DISTRI	BUTION	TEST D	ATA			9/24/2020
Client: Haa Project: Sto Project Nui Location: S Depth: 8.5- Material De Date: 9/24// USCS Clas Tested by:	s & Assoc pp 17 Stor mber: 108 B-4 10 scription 2020 sification AS	ciates rmwater D 33-427-19 1: Poorly g 1: SP	rainage In -00 raded, we	nproveme t, light bro	nts own, fine Sieve T	Sample I to medium est Data	Jumber: 4 1 SAND	Ļ			
Post #200 W	ash Test \	Weights (gi	rams): Dry Tar Mir	e Wt. = 71 nus #200 fr	nd Tare = 8.60 om wash :	908.10 = 0.5%					
Dry Sample and Tare (grams)	Tare (gram	e is)	Sieve Opening Size	Weigh Retain (gram	nt S ed W s) (gi	ieve eight ams)	Percent Finer				
909.10	718	.60	1"	218.	00 2	18.00	100.0				
			3/4"	218.	00 2	18.00	100.0				
			1/2"	218.	00 2	18.00	100.0				
			3/8"	218.	00 2	18.00	100.0				
			#4	218.	00 2	18.00	100.0				
			#8	218.	00 2	18.00	100.0				
			#16	218.	00 2	18.00	100.0				
			#30	218.	00 2	18.00	100.0				
			#50	256.	80 2	18.00	79.6				
			#100	367.	00 2	18.00	1.4				
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			1.14	Fra	actional (	Compone	nts			- The state	
Cobbles		Grave	I			Sand				Fines	
GONDICS	Coarse	Fine	Tota	I Coa	rse Meo	lium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0 7	.6	91.7	99.3			0.7
Dr	Dee	Der	Dee	Dee	Dee	Dro	Dee	Dee	Dec	Dee	Doc
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0.1370	0.1050	0.1740	0.1017	0.1970	0.4137	0.2509	0.2500	0.3023	0.5414	0.3720	0,1007
Fineness Modulus	c _u	cc									
1.19	1.51	0.94									
			e.								

_____ Weaver Consultants Group _____



Tested By: AS

#### GRAIN SIZE DISTRIBUTION TEST DATA

Client: Haas & Associates Project: Stop 17 Stormwater Drainage Improvements Project Number: 1083-427-19-00 Location: SB-3 Depth: 6-7.5 Sample Number: 3 Material Description: Poorly graded, light brown, fine to medium SAND Date: 9/24/2020 USCS Classification: SP Tested by: AS

#### Sieve Test Dat Post #200 Wash Test Weights (grams): Dry Sample and Tare = 963.10

	Tare Wt. = 734.10 Minus #200 from wash = 0.3%											
Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer							
963.70	734.10	1"	0.00	0.00	100.0							
		3/4"	0.00	0.00	100.0							
		1/2"	0.00	0.00	100.0							
		3/8"	0.00	0.00	100.0							
		#4	0.00	0.00	100.0							
		#8	0.00	0.00	100.0							
		#16	0.00	0.00	100.0							
		#30	0.10	0.00	100.0							
		#50	79.00	0.00	65.5							
		#100	148.40	0.00	0.9							
		#200	1.40	0.00	0.3							

Fractional Component

		Gravel		Sand					Fines	
Cobbles	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	10.8	88.9	99.7			0.3

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.1602	0.1712	0.1816	0.1916	0.2117	0.2328	0.2559	0.2827	0.3614	0.3920	0.4320	0.4899

Fineness Modulus	c _u	с _с
1.34	1.65	0.93

Weaver Consultants Group

9/24/2020







May 7, 2021

Mr. Ryan P. Laughlin, PE Professional Engineer Haas & Associates 526 Franklin Street Michigan City, Indiana 46360

Re: Report of Geotechnical Engineering **Proposed Sanitary Collection and Pumping System** Lake Shore Drive and Moore Road Long Beach, Indiana AES Project No. 2021-1045G

Dear Mr. Laughlin:

Advanced Engineering Services (AES) is pleased to submit herewith a report of a geotechnical engineering exploration for the proposed sanitary collection and pumping system project in the Town of Long Beach, Indiana. This study was performed in accordance with AES Proposal No. 2021-168G dated April 14, 2021, which was authorized by you on April 16, 2021.

This report contains field and laboratory test results, an engineering interpretation of the data with respect to the available project characteristics and our recommendations to aid design and construction of the proposed improvements and other earth-related phases of this project.

AES appreciates the opportunity to be of service to you on this project. If we can be of any further assistance, or if you have any questions regarding this report, please do not hesitate to contact us at your convenience.

Respectfully submitted, Advanced Engineering Services (AES) Inc.

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Boring and Coring Location Plan (Prepared by Haas & Associates LLC)

Pavement Core Reports

Design Illustration – Uplift Consideration

Test Boring Logs and Laboratory Test Results

Field Classification System for Soil Exploration

# 1.0 INTRODUCTION

This report presents the results of a geotechnical engineering exploration for the proposed sanitary collection and pumping system project in the Town of Long Beach, Indiana. This study was performed in accordance with AES Proposal No. 2021-168G dated April 14, 2021.

#### 1.1 Purpose and Scope

The purpose of the study was to: obtain surface pavement, subsurface soil and groundwater information present at the site based on pavement cores, test borings, evaluate the suitability of the encountered materials to support the proposed construction, provide recommendations based on the field and laboratory tests for the design of the proposed improvements and earth-related phases of the project.

The scope of this exploration includes: a limited site reconnaissance, pavement cores, soil borings, field and laboratory testing and an engineering evaluation of the encountered subsurface conditions based on the soil borings.

Please note that our recommendations are prepared solely based on the results of the field test borings and in accordance with generally accepted geotechnical engineering principles and practices. It is important to understand that the subsurface soil conditions at other locations may be different and hence no warranties are expressed or implied in this report. We are not responsible for independent conclusions, opinions or recommendations made by others.

#### 1.2 Site and Project Description

Sanitary District of Michigan City hired Haas & Associates to design a sanitary collection and pumping system along Lake Shore Drive and Moore Road in the Town of Long Beach, Indiana. The project area is located within a residential setting near the Lake Michigan shoreline. While no topographic drawings were available, the existing ground surface is relatively flat to mild rolling based on the surface elevations at the test locations provided to us, which varies between about 599 ft and 620 ft, MSL.

While no detailed information regarding the proposed improvements is available, we were informed that the new sewers will consist of 12 inches diameter pipes with inverts varying between about 8 ft to 15 ft below existing ground surface. We were informed that while the majority of the sewers will be installed by conventional open trench method, the portion near the existing "wetland" area along Moore Road will be installed using horizontal directional drilling (HDD) technique.

We understand that there will be a total of four (4) lift stations constructed each near Borings SB-3, SB-6, SB-10 and SB-11. While no information regarding the pump stations is currently available, the structures will include wet-wells and valve vaults that are presumably be covering about 250 sft to 300 sft in plan areas. We understand that they will be supported on mat foundations bearing about 10 ft to 15 ft below the existing grade. No other information is available during the study.



# 2.0 FIELD AND LABORATORY EXPLORATIONS

#### 2.1 Field Exploration

The field exploration program consisted of thirteen (13) pavement cores and fifteen (15) soil borings at the approximate locations shown on the Boring and Coring Location Plan attached in the Appendix. Borings SB-3, SB-6, SB-10 and SB-11, which were completed at the proposed lift stations, were drilled to a depth of 30 ft and the remaining eleven (11) borings were completed to a depth of 20 ft below the existing grade, as requested.

All test locations were established at the site based on the available drawings, estimating distances from existing features, adjusting for accessibility and existing utilities. Since these measurements are not precise, the soil boring locations shown on the attached drawing should be considered approximate. Ground elevations reported on the logs were provided by the client.

Pavement core (PC) samples were collected using a portable Hilti core machine with a 6-inch diameter core barrel. The soil borings were completed using a truck-mounted CME-75 drill-rig. Conventional hollow-stem augers were used to advance the boreholes through the soil. Standard Penetration Tests (SPT) were performed in accordance with applicable ASTM standards. Representative split-spoon samples were obtained at selected intervals. The SPT (N) value corresponding to each split-spoon sample provides general information about the strength and consistency of the naturally occurring materials. The Soil Classification Sheet provided in Appendix explains the SPT test procedure in brief.

Groundwater observations were made during and immediately after completion of the drilling operations. SPT values and groundwater observations are noted on the respective Test Boring Logs. All holes were backfilled with auger cuttings and patched (where applicable) after the drilling.

#### 2.2 Laboratory Explorations

Samples from the field were placed in sealed containers and brought to the laboratory for further analysis. The laboratory program included a supplementary visual classification on all samples and the field logs were edited accordingly. Moisture, organic and marl contents and unconfined compressive strengths, plasticity index, grain size analysis and pH tests were completed on selected soil samples and the results are included in the appendix.

The Test Boring Logs in the Appendix describe visual classifications of all soil strata encountered using the Unified Soil Classification System (USCS). Soil classification explaining terms and symbols used on the logs is provided in the Appendix. Please note that we will store the samples for sixty (60) days after which they will be discarded unless you request otherwise.



# **3.0PAVEMENT CORES**

#### 3.1 Pavement Cores

The following table summarizes our visual observation of the thirteen (13) pavement cores collected from the site. Photographs of the pavement cores are included in the appendix.

Table-3.1: Summary	Pavement Cores
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Pavement Core Nos.	Average Thickness, inch	Summary of Visual Observation
PC-1	Asphalt- 7 Concrete- 7	Multiple asphalt overlays noted. Deteriorated surface over layer in moderate condition. Underlying concrete severely deteriorated.
PC-2	Asphalt- 8 Concrete- 5	Multiple asphalt overlays noted. Asphalt portion appears to be in fair condition. However, the underlying concrete severely deteriorated.
PC-3	Asphalt- 6½ Concrete- 7½	Multiple asphalt overlays noted. Asphalt portion appears to be in fair condition. However, the underlying concrete severely deteriorated.
PC-4	Asphalt- 6½ Concrete- 5½	Multiple asphalt overlays noted. Asphalt portion appears to be in fair condition. However, the underlying concrete severely deteriorated.
PC-5	Asphalt- 5 Concrete- 7	Multiple asphalt overlays noted. Asphalt portion appears to be in fair condition. The underlying concrete was moderately deteriorated.
PC-6	Asphalt- 6 Concrete- 5	Multiple asphalt overlays noted. Asphalt portion appears to be in fair condition. The underlying concrete was moderately deteriorated.
PC-7	Asphalt- 5 Concrete- 6½	Multiple asphalt overlays noted. Deteriorated surface with underlying asphalt in fair condition. The underlying concrete was deteriorated.
PC-8	Asphalt- 4 Concrete- 7½	Multiple asphalt overlays noted. Asphalt portion appears to be in fair condition. However, the underlying concrete is severely deteriorated.
PC-9	Asphalt- 3½ Concrete- 7	Multiple asphalt overlays noted. Asphalt appears to be in fair condition. The underlying concrete was deteriorated.
PC-10	Asphalt- 7½ Concrete- 5	Multiple asphalt overlays noted. Asphalt in poor condition. The underlying concrete was extremely deteriorated.
PC-11	Asphalt- 12 Concrete- 6	Multiple asphalt overlays noted. Asphalt appears to be in fair condition. The underlying concrete was deteriorated.
PC-12	Asphalt- 4 Slag - 4½	Multiple asphalt overlays noted over slag. Asphalt appears to be in fair condition. No concrete was noted.
PC-13	Asphalt- 4½ Concrete- 5	Multiple asphalt overlays noted. Asphalt surface shows deterioration. The underlying concrete was deteriorated.

<u>Note</u>: No distinct aggregate base was noted at any pavement core locations except PC-12, where crushed slag was noted.



# 4.0 GENERAL SUBSURFACE CONDITIONS

#### 4.1 General

The subsurface materials encountered and groundwater observations at each boring are described in detail on the Test Boring Logs provided in Appendix. It should be noted that stratification lines shown on the boring logs represent approximate transitions between material types. In-situ strata changes could occur gradually or at slightly different levels. Also, it should be noted that the boring logs depict conditions at the soil boring locations only and the subsurface conditions at other locations may vary. Some conditions, such as groundwater conditions, could change with time.

#### 4.2 Subsurface Soil and Groundwater Profile

All soil borings completed in the existing pavement areas (except Borings SB-1, SB-6, SB-11 and SB-14) encountered asphalt over concrete with combined thicknesses varying from about 8.5 inches to 18 inches at the present ground surface. Borings SB-1 and SB-14 encountered asphalt over sand and gravel or slag with combined thicknesses of about 10 inches and 8.5 inches, respectively. No concrete was noted at these two locations.

Boring SB-11 noted old fill materials consisting of brown to dark brown sandy clay over dark gray silty sand from the existing surface to about 3 ft below the existing ground surface. Below pavement at Borings SB-12, SB-14 and SB-15, old fills consisting of silty sand with slag was noted to depths about 3.5 ft, 2 ft and 5 ft, respectively, below the existing grade. Black silty sand with relatively high organics was noted below pavement at Boring SB-13 to a depth of about 6 ft below the existing ground surface.

From the existing ground surface at Boring SB-6 and below the materials described above in the remaining soil borings, the predominant subsurface soil appears to be brown poorly graded sand (SP), sandy silt (ML) or silty sand (SM) with interbedded gray to dark gray silt (ML), silty clay (CL-ML), elastic silt (MH) and lean clay (CL) with variable amounts of organics and marl to the termination depths of 20 ft and 30 ft below the existing ground surface.

Based on the field Standard Penetration Test (SPT) values, the natural granular soils were very loose to very dense and the cohesive soils were very soft to very stiff. Moisture, organic and marl contents of the samples obtained from the organic zones were as high as about 481.4%, 34.7% and 37%, respectively.

#### 4.3 Groundwater Profile

Groundwater observations were made during the drilling and immediately after completion of the soil borings. Free groundwater was encountered in majority of the borings at depths varying between about 4 ft and 19 ft below the existing ground surface during or immediately after the drilling. Please note that although groundwater observations in granular soils provide an accurate groundwater information at the time of drilling, groundwater conditions may change due to precipitation, water level at Lake Michigan and other hydro-geologic factors.



#### 4.4 Laboratory Test Results

Various laboratory tests were completed to understand the engineering characteristics of the subsurface soil and reported on the Test Borings Logs or provided in the Appendix. Moisture contents tests performed on selected samples were discussed earlier. Grain size analysis completed on selected samples are included in the Appendix. Unconfined compressive strength and Plasticity index tests completed on selected samples are summarized below:

#### Table 4.1: Summary of Unconfined Compression and Plasticity Index Test Results

Boring Nos.	Depth ft	Unconfined Compressive Strength, tsf	Shear Strength tsf	Dry Density, pcf	Moisture %	Liquid Limit	Plastic Limit	Plasticity Index	USCS
SB-2	18.5-20	-	-	-	43.1	45	35	10	ML
SB-6	23.5-25	2.0	1.0	77.9	45.1	54	23	31	MH
SB-11	28.5-30	4.5	2.25	118.5	16.4	27	17	10	CL

The pH test was performed on selected soil samples and the test results are summarized in the following table:

Boring Nos.	Depth ft	Classification	рН
SB-3	6 - 7.5	Poorly Graded Sand	8.2
SB-5	3.5 – 5	Poorly Graded Sand	8.5
SB-10	6 – 7.5	Poorly Graded Sand	8.6
SB-12	3.5 - 5	Black Silty Sand with Organics	8.0
SB-14	3.5 - 5	Brown to Dark Brown Sand	8.3

#### Table 4.2: Summary of pH Test Results



# 5.0 GEOTECHNICAL RECOMMENDATIONS

#### 5.1 General

Based upon our analysis of the soil conditions revealed by the test borings and the available project information, the following recommendations were developed. Please note that if the project characteristics are changed from those assumed herein, our recommendations must be reviewed to see whether any modifications are needed.

The soil borings identified actual subsurface conditions only at the test locations. It was necessary to extrapolate these conditions in order to characterize the entire project site. Hence, the subsurface conditions encountered during construction may vary somewhat from the test boring results and may in the extreme case, differ to the extent that modifications to the recommendations become necessary. Therefore, we recommend that AES be retained as the geotechnical consultant throughout the earth-related phases of the project to correlate actual soil conditions with the test data, identify variations, conduct additional tests that may be needed and recommend solutions to earth-related problems that may develop during construction.

#### 5.2 Site Preparation

Proper subgrade preparation is essential for long-term performance of any utility installation and road construction project. Please note that improper earthwork may deteriorate an otherwise suitable subgrade. This is especially important for this site as subgrade soils with high organics such as noted at Borings SB-11, SB-12, SB-13 and SB-14 may deteriorate and become unstable, which may require additional special stabilization. We understand that the utilities will likely be installed using horizontal directional drilling (HDD) technique in these areas while the remaining portion will be installed via conventional open cut method.

The time period between late spring and early fall are typically favorable for earthwork in the project area. Earthwork activities undertaken during late fall and winter often encounter substantial difficulties associated with snow, rain and cold temperatures.

All existing pavement, topsoil, highly organic (over 5%), frozen, wet, soft, loose or otherwise unsuitable material should be removed from the proposed sewer alignment or adequately stabilized. The excavations should be performed in a manner consistent with good erosion and sediment control practice.

Adequate drainage must be provided at the site to minimize any increase in moisture content of the subgrade soils. Maintaining positive site drainage is an important part of successful earthwork operations and long-term performance. The contractor should maintain the construction area in a well-drained condition both during and after construction. Improper site drainage during grading can increase the need for remedial treatment of excessively wet soils. To minimize percolation of rain water, disturbed areas should be sealed off with rubber tired or smooth drum roller at the end of each day and prior to anticipated inclement weather. Ditches must be kept open at all times and the subgrade should be graded at the end of each day to facilitate drainage. It is recommended that the construction be performed in segments to minimize deterioration of the subgrade.



Once the subgrade elevation is reached and prior to placing any new fill in the road reconstruction areas, the exposed subgrade should be proof-rolled in accordance with the INDOT Standard Specification (ISS) Section 203.26. The purpose of the proof-rolling is to locate soft, weak, or excessively wet soils present at the surface or beneath a thin crust of relatively stronger soil. Unsuitable bearing soils revealed by proof-rolling should either be undercut and replaced with suitable Structural Fill or stabilized. Any new engineered fill should be placed in accordance with ISS Sections 211.02 and 203.09.

The test borings suggest that the subgrade consist of predominantly sandy soils although a few soil borings revealed soils with organics. Soils with relatively high organics will likely deteriorate when exposed to moisture and construction traffic. Depending on the weather conditions, these materials as well as other sandy soils may become loose or unstable under construction traffic particularly if the construction is performed immediately after precipitation or during colder temperatures. The extent to which this may be a problem is difficult to determine beforehand since it is dependent upon several factors including cut and fill depths, weather conditions, drainage provisions, variations in soil conditions across the site, sequencing and scheduling of the earthwork and construction traffic, etc. Construction traffic must be controlled to minimize disturbance and deterioration of the subgrade. It is further recommended that the pavement construction be performed in segments to minimize deterioration of the subgrade.

In general, yielding subgrade problems are more prominent in cut areas (where saturated or nearly saturated clayey soils are exposed by the excavation) or where little or no fill is placed. Depending on these factors, it may be possible to stabilize some yielding subgrade soils by disking, aerating and then re-compacting the soils. However, this is often unsuccessful, particularly when the weather conditions do not permit drying of wet soil. In such case, it may be necessary to undercut and replace with coarse aggregate and geo-grid or to use chemical modification (such as lime, fly-ash, cement, etc.). A contingency should be in place incase unstable subgrade soil is encountered during construction. An AES representative should be present during the earthwork to identify areas where special stabilization may be necessary and verify that these recommendations are implemented during construction.

#### 5.3 Excavation and Slope Stability

Based on the soil borings, there should not be any significant difficulties in excavating soils at this site with conventional equipment except near the existing "wetland" areas along Moore Road. Unless specified otherwise, all permanent cut slopes should be no steeper than 3 horizontal to 1 vertical. Flatter cut slopes may be required in cases where there is ground water seepage or the foundation soils are particularly poor such as noted in Borings SB-11, SB-12 and SB-13. All temporary excavations for the construction of the improvements should be properly laid back or braced in accordance with Occupational Safety and Health Administration (OSHA) requirements.

Where new fill is placed against existing slopes that are steeper than 4 (horizontal) to 1 (vertical), it will be necessary to bench (10 ft wide) the new fill into the existing slope in order to provide a good bond between the existing soil and the new fill and to prevent weak interface. If spatial constraints will not permit an open cut, bracing will be required for any excavation deeper that 5 ft.

Care must be exercised when excavating near the existing streets, underground utilities, etc., to protect the integrity of the existing facilities. Bracing may be required if it becomes necessary to excavate below and in close proximity to such facilities. All temporary bracing for deep excavations should be designed and installed by an experienced specialty contractor.



#### 5.4 Recommendations for Lift Stations

The proposed structures may be supported on reinforced concrete mat foundations that bears on suitable natural granular soil of the type encountered in Borings SB-3, SB-6, SB-10 and SB-11 or engineered fill placed on such soils and designed using a maximum gross allowable bearing pressure of 3,000 pounds per square ft (psf). It is important that all existing old fills, soft, organic and otherwise unsuitable materials are removed from the proposed lift station (wet-well and valve vault) areas and replaced with engineered fill. We recommend that the lift station bearing elevation be maintained as high as possible to minimize any influence on the soft elastic silt with organics was noted at Boring SB-6 at a depth of about 23 ft below existing grade. Based on Boring SB-11, some minor undercut may be necessary in order to support the lift station on suitable sand.

The mat foundation should be adequately reinforced to withstand differential settlements. Based on the recommended allowable bearing pressure, the anticipated wet-well size and depth, it is estimated that post-construction total settlements will be on the order of about 1 inch. Proper quality control during construction will help to minimize future settlements.

All exterior foundations must bear at least 3.5 ft below final exterior grade for frost protection. All foundation bearing surfaces should be examined by an AES representative to verify that the foundation bears on suitable materials before placing. Since groundwater was encountered as shallow as about 4 ft and may rise seasonally, the contractor must be prepared to dewater during lift station construction. Dewatering is discussed later in this report.

Lateral forces can be resisted by the passive lateral earth pressure against the side of the footing and by friction between the subgrade soil and the base of the footing. An allowable passive pressure of 120 pcf per ft of depth can be used for that portion of the footing that is below a depth of 2.5 ft below the final exterior grade (no portion of the footing above this depth should be used for lateral resistance). An allowable coefficient of friction value of 0.25 (which includes a factor of safety of 1.5) may be used between concrete and the underlying soil.

Uplift forces on the footings can be resisted by the weight of the footings and the backfill over the footings. We recommend that the soil weight be limited to that immediately above and within the perimeter of the footings (unless a much higher factor of safety is used). A total soil unit weight of 120 pounds per cubic foot (pcf) can be used for the backfill material adjacent to and above the footings, provided it is compacted as recommended in this report. It is also recommended that a factor of safety of at least 1.2 be used for calculating uplift resistance from the footings (provided only the weight of the footing and the soil immediately above are used to resist uplift forces).

Due to the fluctuation of groundwater level throughout the year, it is recommended that the design high groundwater level be taken as at the existing ground surface. Hence, it will be necessary to include design measures to resist buoyancy and hydrostatic pressures in the design of the wet-well. Buoyant forces can be resisted by increasing the weight of the structure and/or by providing a "lip" around the exterior walls (Figure No. 2 in the Appendix) so that the weight of the soils overlying the extended portion contributes to the uplift resistance.

A total unit weight of soil above the lip of the slab of 120 pcf (submerged unit weight of 57.5 pcf) may be used to determine the weight of the soil overlying the lip. Furthermore, all below-grade walls should be waterproofed. Where possible or practical, it is recommended that perforated drainage pipes be placed along the bases of walls to drain surface water and ground water that will enter the backfill. All of the drain pipes should drain to a sump pit from which water can be pumped, or a suitable gravity outfall.



Geologic mapping and the results of the test borings suggest that the subsurface conditions at this site meet the criteria for Site Class D (which corresponds to a shear wave velocity of between 600 ft/sec and 1,200 ft/sec) based on Section 1613.5.2 of the 2014 International Building Code (IBC). The following table summarizes recommended foundation design parameters:

Static Design Parameters	Recommended Values
Allowable Soil Bearing Pressure:	3,000 PSF
Soil Modulus of Subgrade Reaction, k ₃₀	21 psi/inch
Est. Settlements associated with Bearing Pressure:	Total 1 inch
Allowable Passive Pressure	120 pcf per ft (Below 2.5 ft from finished surface)
Coefficient of Friction between Concrete & Soil	0.25 (Allowable)
Total Unit Weight:	120 pcf
Minimum Frost Depth	3.5 ft Below Finished Grade

#### Table 5.1: Recommended Design Parameters for Mat Foundations

#### 5.5 Recommendations for Sanitary Sewers

The subsurface soil noted in the soil borings appear to be generally suitable to support the proposed sanitary sewers except the organic materials noted in Borings SB-12 and SB-13. We understand that the sewers along Moore Road will be installed using HDD. All existing pavement, vegetation, highly organic (over 5%) and otherwise unsuitable materials should be removed from the proposed sewer subgrade where they will be installed using the open cut method. All utility excavations should be observed by an AES representative to verify that all unsuitable material is removed.

Since free groundwater was noted in the test borings as shallow as about 4 ft below the existing ground surface, and may rise and the contractor must be prepared to handle any groundwater during excavations. All excavations should be performed as per OSHA guidelines. Sheeting or boxes should be used in order to stabilize the excavations especially the excavation extend into granular soils.

Once the sewer subgrade appears satisfactory, approved bedding materials should be placed before placing the pipes. The bedding material around the structures should be in accordance with Section 211 of the Indiana Department of Transportation (INDOT) Standard Specifications (ISS). The sewer pipes should be adequately covered with bedding materials, as specified. Hand-or remote-guided vibratory compactors are recommended for compacting the bedding material and backfill on either side of the structure.

The first few lifts of backfill over the structure should also be compacted with small vibratory compactor to assure proper compaction is achieved and to prevent damage from heavier and higher energy compactors. Compaction equipment should run parallel to the axis of the structures, starting at the extremity and progressing toward the structures.



Compaction with heavy equipment should not begin until a minimum of two to three lifts have been placed, hand compacted and tested. The remaining structural fill may then be placed and compacted as an engineered fill discussed in this report.

#### 5.6 Horizontal Directional Drilling

We understand that a portion of the proposed sewer may be installed using horizontal directional drilling (HDD) method, which is a trenchless technology, where casing pipes are jacked through the soil and simultaneously augured inside the casing. Ground conditions along a portion of the proposed alignment on Moore Road are expected to consist of black silty sand with organics and marl. The contractor must be prepared to handle such organic soils during installation.

Design of the temporary ground support should be designed by a Professional Engineer. The system should be designed to resist the lateral earth pressures, hydrostatic, surcharge, and jacking loads. Surcharge loads (if any) should also be considered. Bracing and backstops should be designed and jacks with sufficient rating be used so that the jacking can progress without stoppage. The following soil parameters may be used for the design of the bracing, if necessary:

Soil Property	Brown Poorly Graded Sand
Moist (Total) Unit Weight, $m{\chi}$ (pcf)	120
Angle of Internal Friction, $\Phi$ (degrees)	30°
Cohesion, c (psf)	0

#### Table 5.2 Recommended Design Soil Parameters

#### 5.7 Engineered Fill

We understand that the project may require minimal cut and fill to achieve finished grade. Once the subgrade has been properly prepared as per the above guidelines, new fills may be placed in order to attain desired final grades. In general, any non-organic, non-expansive soils can be used for engineered fill that meets the requirements for INDOT Structural Fill (ISS, Section 904.05).

Engineered fill should be placed in lift thicknesses not to exceed about 8 inches and compacted to a minimum of 95% of the standard Proctor maximum dry density (ASTM D698). Aggregate base, however, should be compacted to at least 100% of the same Proctor density. Filling should be done in thin lifts in accordance with Section 203.09 of the INDOT Standard Specifications. It is likely that some drying of the fill material will be required before being placed in order to meet the INDOT Specification for fill placement. It is probable that this will also be the case for most of the soil materials encountered within the range of subgrade treatment. A granular material may be necessary to satisfy the minimum compaction of the soils related phases of this project. Otherwise, we can assume no responsibility for construction compliance with the design concepts, specifications, or our recommendations. As part of this review, field density tests should be performed frequently to assist in the evaluation of the fill with respect to the above recommendations.



#### 5.8 Corrosion Protection

The soil samples, tested for pH during the laboratory tests (as tabulated earlier), indicate that the soils at the site have a low potential for causing corrosion. However, the scope of this study did not include a thorough evaluation of the corrosion potential and a corrosion expert should be consulted.

#### 5.9 Groundwater Control

Since perched groundwater was encountered as shallow as about 4 ft during the exploration, the Contractor must be prepared to control the surface and/or groundwater during construction, if encountered.

If water accumulates or ponds in the construction area, it should be promptly and properly removed. Water should not be pumped directly from an excavation terminating in saturated sandy soil. Typically, well-points or cased-wells installed outside the excavation limits are necessary to lower groundwater in saturated sandy soils. We recommend that water be lowered at least 2 ft below the lowest excavation point in such case. An experienced dewatering contractor should be employed to design and install dewatering system, if necessary. Any dewatering should be performed with caution as improper dewatering may deteriorate the subgrade as well as nearby structures.



# 6.0 LIMITATIONS OF STUDY

#### **Differing Site Conditions**

Geotechnical engineering recommendations were developed based on the information obtained from the test borings. Please note that soil test borings only depict the subsurface soil and groundwater conditions at the specific locations and time at which they were made. The soil conditions at other locations at the site may differ from those occurring at the soil boring locations. Groundwater condition may change over time. If deviations from the noted subsurface conditions are encountered during construction, please notify us immediately for recommendations.

#### Not Final Design

This report and the recommendations included in the report are not a final design, but rather as a basis for the final design to be completed by others (architect, civil or structural engineers, etc.). It is the client's responsibility to ensure that the recommendations are properly integrated into the design, and that the geotechnical engineer is provided the opportunity for design input and comment, as needed. We recommend that this firm be retained to review the final construction documents to confirm that the proposed project design sufficiently reflects the recommendations presented in the report. We also suggest that our firm be represented at pre-bid and/or pre-construction meetings regarding this project to offer any needed clarification of the geotechnical information to all involved.

#### Changes in Plans

The recommendations presented herein are based on the preliminary design details furnished by the client and/or as assumed herein. Any revision in the plans for the proposed construction from those anticipated in this report should be brought to the attention of the geotechnical engineer to determine whether any changes in the foundation or earthwork recommendations are necessary.

#### **Construction Issues**

Although general constructability issues have been considered in this report, the means, methods, techniques, sequences and operations of construction, safety procedure, and all items incidental thereto and consequences of, are the responsibility of parties to the project other than AES. Please contact us if additional guidance is needed.

#### **Report Interpretation**

AES is not responsible for the conclusions, opinions, or recommendations made by others based upon the data included herein. It is the client's responsibility to seek any guidance and clarifications from the geotechnical engineer needed for proper interpretation of this report.

#### Environmental Considerations

The scope of our services does not include any environmental assessment or exploration for the presence or absence of hazardous or toxic materials in the soil, surface or groundwater, water within or beyond the site studied. Unless complete environmental information regarding the site is already available, an environmental assessment is recommended prior to the development of this site.

#### Standard of Care

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This statement is made in lieu of all other warranties either expressed or implied.



APPENDIX

BORING LOCATION PLAN PAVEMENT CORE REPORTS DESIGN ILLUSTRATION - UPLIFT CONSIDERATIONS TEST BORING LOGS LABORATORY TEST RESULTS FIELD CLASSIFICATION SYSTEM



D by: RYAN LAUGHLIN	lay, May 3, 2021 4:26:32 PM	2021290_LSDSI\08 - Design-Analysis\01-ACAD\3-Production\4-Exhibits\PRD_Exhibit_Soil Boring RFP.dwg	
Published from AutoCAD by: RYAN L/	Plot Date & Time: Monday, May 3, 202	File Location: P:\2021\2021290_LSD	

SOIL BORING LOCATION TABLE					SOIL BORING LOCATION TABLE						
BORING/CORING I.D.	MIN. SOIL BORING DEPTH	NORTHING: EASTING:	APPROX. SURFACE ELEVATION	COMMENTS	BORING/CORING I.D.	MIN. SOIL BORING DEPTH	NORTHING: EASTING:	APPROX. SURFACE ELEVATION	COMMENTS	BORING/CORING I.D.	MIN. SO BORING D
E_B-01 (2003-0212)	25 FT.	N:2,367,504.622 E:3020130.669	610.70	EXISTING SOIL BORING.	PC-08 (LSDSI)	NA FT.	N:2,369,206.065 E:3018734.148	604.84		SB-06 (LSDSI)	30 F
E_PC-14 (2005-1031)	NA FT.	N:2,369,699.785 E:3020019.768	611.23	EXISTING PAVEMENT CORING.	PC-09 (LSDSI)	NA FT.	N:2,369,871.678 E:3019875.400	598.44		SB-07 (LSDSI)	20 F
E_PC-15 (2005-1031)	NA FT.	N:2,369,704.563 E:3019591.278	598.44	EXISTING PAVEMENT CORING.	PC-10 (LSDSI)	NA FT.	N:2,367,337.613 E:3020140.204	607.76		SB-08 (LSDSI)	20 F
E_PC-19 (2005-1031)	NA FT.	N:2,363,604.464 E:3009715.939	603.17	EXISTING PAVEMENT CORING.	PC-11 (LSDSI)	NA FT.	N:2,366,944.044 E:3020147.662	608.74		SB-09 (LSDSI)	20 F
PC-01 (LSDSI)	NA FT.	N:2,364,195.223 E:3010614.613	601.63		PC-12 (LSDSI)	NA FT.	N:2,366,440.864 E:3020154.552	611.76		SB-10 (LSDSI)	30 F.
PC-02 (LSDSI)	NA FT.	N:2,364,937.158 E:3011744.449	600.58		PC-13 (LSDSI)	NA FT.	N:2,365,709.613 E:3020165.752	620.43		SB-11 (LSDSI)	30 F
PC-03 (LSDSI)	NA FT.	N:2,365,694.037 E:3012929.783	606.25		SB-01 (LSDSI)	20 FT.	N:2,363,447.025 E:3009487.514	604.45		SB-12 (LSDSI)	20 F
PC-04 (LSDSI)	NA FT.	N:2,366,448.707 E:3014125.584	603.89		SB-02 (LSDSI)	20 FT.	N:2,364,195.223 E:3010614.613	601.63		SB—13 (LSDSI)	20 F
PC-05 (LSDSI)	NA FT.	N:2,367,171.655 E:3015395.851	606.84		SB-03 (LSDSI)	30 FT.	N:2,364,920.244 E:3011755.888	601.93	AT A PROPOSED LIFT STATION LOCATION	SB-14 (LSDSI)	20 F
PC-06 (LSDSI)	NA FT.	N:2,367,833.432 E:3016488.822	616.36		SB-04 (LSDSI)	20 FT.	N:2,365,694.037 E:3012929.783	606.25		SB-15 (LSDSI)	20 F
PC-07 (LSDSI)	NA FT.	N:2,368,494.524 E:3017627.497	626.48		SB-05 (LSDSI)	20 FT.	N:2,366,448.707 E:3014125.584	603.89			



# NOTES

- 1. ALL BORINGS ARE ALONG LAKE SHORE DRIVE AND MOORE ROAD IN LONG BEACH, INDIANA.
- 2. ALL COORDINATES ARE INDIANA STATE PLANE (WEST) / NAD83.
- 3. "PC" STANDS FOR "PAVEMENT CORING" 4. "SB" STANDS FOR "SOIL BORING"
- 5. NEW PAVEMENT CORINGS AND SOIL BORINGS ARE NOT REQUIRED OR DESIRED AT EXISTING PAVEMENT CORING AND SOIL BORING LOCATIONS.



6. EXISTING CONDITIONS SURVEY HAS NOT BEEN COMPLETED. ANY UTILITIES SHOWN ARE APPROXIMATE AND HAVE NOT BEEN FIELD VERIFIED.

# NORTH 30 Fe

# SOIL BORING LOCATION TABLE

MIN. SOIL BORING DEPTH	NORTHING: EASTING:	APPROX. SURFACE ELEVATION	COMMENTS
30 FT.	N:2,367,105.707 E:3015391.868	608.16	AT A PROPOSED LIFT STATION LOCATION
20 FT.	N:2,367,833.432 E:3016488.822	616.36	
20 FT.	N:2,368,494.524 E:3017627.497	626.48	
20 FT.	N:2,369,206.065 E:3018734.148	604.84	
30 FT.	N:2,369,856.855 E:3019883.066	598.99	AT A PROPOSED LIFT STATION LOCATION
30 FT.	N:2,367,527.702 E:3020205.183	610.56	AT A PROPOSED NEW WET WELL LOCATION
20 FT.	N:2,367,337.613 E:3020140.204	607.76	
20 FT.	N:2,366,944.044 E:3020147.662	608.74	
20 FT.	N:2,366,440.864 E:3020154.552	611.76	
20 FT.	N:2,365,709.613 E:3020165.752	620.43	ADJACENT TO POSSIBLE HDD PIT LOCATION

FIGURE NO. 1

	-				
	CONSUL www 526 Michig Phon	W.HaasLLC.com Franklin Street gan City, IN 46360 e: 219-872-9407			
	CERTIFICATION				
	<b>EX</b> (N	HIB!			
		E & LOCATION			
	nts - 2	ch, India			
	<i>reme</i>	istrict ng Bead			
	nprov	itary D oad, Lo			
	ary Ir	City Sar Aoore R			
	Sanit	chigan ( rive & N			
	rive	ner: Mic Shore D			
	ore D	Owr : Lake S			
vet	ke Sh	ocation			
	La	<b>й</b>			
	REVISIONS 5.3.2021	UPDATED EXHIBIT WITH APPROXIMATE SURFACE ELEVATIONS			
	DATE ISSUED:	DRAWN BY			

**TBD** (PLOTTED: 5.3.2021)

**EXHIBIT A - SOIL BORINGS** 

& PAVEMENT CORINGS

LOCATIONS EXHIBIT

NONE

SHEET TITLE

SHEET NO.

RPL



Core No.	Pavement Type	Core Diameter	Average Thickness
PC-1	Asphalt over Concrete	6 inches	Asphalt – 7 inches Concrete – 7 inches
PC-2	Asphalt over Concrete	6 inches	Asphalt – 8 inches Concrete – 5 inches


Core No.	Pavement Type	Core Diameter	Average Thickness				
PC-3	Asphalt over Concrete	6 inches	Asphalt – 6.5 inches Concrete – 7.5 inches				
PC-4	Asphalt over Concrete	6 inches	Asphalt – 6.5 inches Concrete – 5.5 inches				



Core No.	Pavement Type	Core Diameter	Average Thickness
PC-5	Asphalt over Concrete	6 inches	Asphalt – 5 inches Concrete – 7 inches
PC-6	Asphalt over Concrete	6 inches	Asphalt – 6 inches Concrete – 5 inches



Core No.	Pavement Type	Core Diameter	Average Thickness				
PC-7	Asphalt over Concrete	6 inches	Asphalt – 5 inches Concrete – 6.5 inches				
PC-8	Asphalt over Concrete	6 inches	Asphalt – 4 inches Concrete – 7.5 inches				



Core No.	Pavement Type	Core Diameter	Average Thickness				
PC-9	Asphalt over Concrete	6 inches	Asphalt – 3.5 inches Concrete – 7 inches				
PC-10	Asphalt over Concrete	6 inches	Asphalt – 7.5 inches Concrete – 5 inches				



Core No.	Pavement Type	Core Diameter	Average Thickness				
PC-11	Asphalt over Concrete	6 inches	Asphalt – 12 inches Concrete – 6 inches				
PC-12	Asphalt over Slag	6 inches	Asphalt – 4 inches Slag – 4.5 inches				



Core No.	Pavement Type	Core Diameter	Average Thickness
PC-13	Asphalt over Concrete	6 inches	Asphalt – 4.5 inches Concrete – 5 inches



CLIENT Hass & Associates       PROJECT NUMBER 2021-1045G         PROJECT NUMBER 2021-1045G       PROJECT LOCATION Lakeshore Dr & Moore Rd, Long Bea         DATE STARTED 4/22/21       COMPLETED 4/22/21         DRILLING CONTRACTOR GTC       GROUND ELEVATION 604.45 ft       HOLE SIZE 4 inch         DRILLING CONTRACTOR GTC       GROUND WATER LEVELS:       Image: Contract of the state of the s	AGE 1 OF 1
PROJECT NUMBER 2021-1045G       PROJECT LOCATION Lakeshore Dr & Moore Rd, Long Bea         DATE STARTED 4/22/21       COMPLETED 4/22/21       GROUND ELEVATION 604.45 ft       HOLE SIZE 4 inchu         DRILLING CONTRACTOR GTC       GROUND WATER LEVELS:       GROUND WATER LEVELS:       VATTIME OF DRILLING 18.00 ft / Elev 586.45 ft         LOGGED BY DD       CHECKED BY AZ       AT TIME OF DRILLING	System
DATE STARTED_4/22/21COMPLETED_4/22/21GROUND ELEVATION_604.45 ftHOLE SIZE_4 inchi         DRILLING CONTRACTOR_GTCGTCGROUND WATER LEVELS:         DRILLING METHOD_HSA         LOGGED BY_DDCHECKED BY_AZ         NOTES_Ground Elevation provided by Client.         H_GE         Q         Asphalt-3 in.         Sand and Gravel-7 in.         SS       3-2-3         Dense         Asphalt-3 in.         SS       3-2-3         SS       3-2-3         SS       3-2-3         SS       3-5-7         SS       3-5-7         SS       3-5-7         SS       3-2-3         SS       3-2-3	h, Indiana
DRILLING CONTRACTOR GTC     GROUND WATER LEVELS:       DRILLING METHOD HSA	s
DRILLING METHOD HSA       Y AT TIME OF DRILLING 18.00 ft / Elev 586.45 ft         LOGGED BY _DD       CHECKED BY AZ         NOTES _Ground Elevation provided by Client.       AFTER DRILLING Cave at 17 ft.         AFTER DRILLING Cave at 17 ft.       AFTER DRILLING Cave at 17 ft.         H_GE       Statistical description       Statistical description         H_GE       Statistical description       Statistical description         Asphalt-3 in.       Statistical description       Statistical description         Statistical description       Statistical description       Statistical description	
LOGGED BY _DDCHECKED BY _AZAT END OF DRILLING Cave at 17 ft.         NOTES _Ground Elevation provided by Client.         H	
NOTES       Ground Elevation provided by Client.       AFTER DRILLING	
Asphalt-3 in. Sand and Gravel-7 in. (SP) Brown Poorly Graded Sand, Moist, Very Loose to Medium Dense 10 10 10 10 10 10 10 10 10 10 10 10 10	
Asphalt-3 in. Sand and Gravel-7 in. (SP) Brown Poorly Graded Sand, Moist, Very Loose to Medium Dense 5 5 1 1 SS 4-6-7 1 (13) SS 3-2-3 (5) SS 3-2-3 (6) SS 3-2-4 (8) SS 3-5-7 (12) SS 3-2-3 (5) SS 3-5-7 (12) SS 3-2-3 (5) SS 3-5-7 (12) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (6) SS 3-5-7 (12) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-5-7 (12) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS 3-2-3 (5) SS SS 3-2-3 (5) SS SS SS SS SS SS SS SS SS S	PLASTICITY ST PLASTICITY ST INDEX D UNCONF. COMP STRENGTH (TSF)
(SP) Brown Poorly Graded Sand, Moist, Very Loose to Medium       SS       4-6-7         5       1       4/6-7         5       2       (5)         5       3       2-3         5       -       -         1       -       -         5       -       -         5       -       -         5       -       -         5       -       -         6       -       -         7       -       -         6       -       -         7       -       -         6       -       -         7       -       -         6       -       -         7       -       -         10       -       -         10       -       -         5       3       -         5       -       -	
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SS 3-2-3 5 (5)	
$\begin{array}{ c c c c c }\hline SS & 2-3-4 \\\hline 15 & & & & \\\hline \end{array}$	
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Bottom of borehole at 20.0 feet.	

	advan	ced eng	Advanced Engineering Services Inc. 7439 Calumet Avenue Hammond, IN 46324 Telephone: 219 933 7888				E	BOR	ING	S NU	JME	BER PAGE	<b>SB</b> 1 0	<b>8-2</b>
	CLIEN	IT <u>Ha</u>	as & Associates	PROJEC	T NAME	Propo	osed Sanita	ary Co	llectio	n and	Pumpi	ing Sy	stem	
	PROJ	ECT N	UMBER _ 2021-1045G	PROJEC	T LOCAT		_akeshore	Dr & N	Noore	Rd, Lo	ong Be	each, I	ndiana	a
	DATE	STAR	TED _4/22/21         COMPLETED _4/22/21	GROUN	D ELEVA		601.63 ft		HOLE	SIZE	4 inc	hes		
	DRILL	ING C	ONTRACTOR GTC	GROUN	D WATER	LEVE	LS:							
	DRILL	ING M	ETHOD HSA	⊻а	T TIME OF	DRILI	_ING _14.0	00 ft / E	Elev 5	87.63	ft			
	LOGG	BED B	CHECKED BY AZ	A	FEND OF	DRILL	ING C	ave at	13.51	ft.				
	NOTE	<b>S</b> _ Gr	bund Elevation provided by Client.	A	TER DRI	LLING					. ==			
	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY %	STD. PEN. TEST SPT (N VALUE)	HAND PEN. (TSF)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)				UNCONF. COMP STRENGTH (TSF)
-			Asphalt-7 in. Concrete-7 in. (SP) Brown Poorly Graded Sand, Moist to Wet, Loose to Dense	Medium	SS 1	$\times$	4-4-4 (8)	-						
NGBEACH.GPJ	 <u>5</u>				SS 2		4-4-4 (8)	-						
RING LOGS LOI					SS 3		4-7-9 (16)							
SEWER IMP/BO	 <u>10</u> 				SS 4		6-7-11 (18)	-						
LONGBEACH			$\nabla$				4-6-8 (14)	-						
21/1045G HAAS	 		<del>-</del>			$\mid$	3-3-4 (7)	_						
'21 11:58 - H:\20			(ML) Gray to Dark Gray Silt, Trace Sand and Organics, W Medium Stiff	 /et,	V ss		3-5-5		-					
- 5/7,	20		SS#7: Organics = 6.0%		7	ert	(10)	0.75		43.1	45	35	10	
C GRAPHICS BH COLUMN - GINT STD US LAB AES.GE			Bottom of borenole at 20.0 feet.											

	advan	ced en	Advanced Engineering Services Inc. 7439 Calumet Avenue Hammond, IN 46324 Telephone: 219 933 7888				E	BOR	ING	G NU	JME	BER PAGE	<b>SE</b> ≣ 1 C	<b>8-3</b> DF 1
	CLIEN	IT <u>Ha</u>	aas & Associates PR	OJECT	NAME	Prop	osed Sanit	ary Co	llectio	n and	Pump	ing Sy	stem	
	PROJ	ECT N	UMBER _2021-1045G PR	OJECT	LOCAT		Lakeshore	Dr & I	Noore	Rd, Lo	ong Be	each, I	ndiana	a
	DATE	STAR	TED <u>4/22/21</u> COMPLETED <u>4/22/21</u> GR	ROUND	ELEVA		600.58 ft		HOLE	SIZE	4 inc	hes		
	DRILL	ING C	ONTRACTOR GTC GR	ROUND	WATER	LEVE	LS:							
	DRILL	ING N	IETHOD HSA	ר <b>דא</b> ⊻		DRIL	LING	)0 ft / I	Elev 5	89.58	ft			
	LOGG	ED B	CHECKED BY AZ	AT E	END OF	DRILL	.ING C	ave at	10 ft.					
	NOTE	S Gr	ound Elevation provided by Client.	AFT	ER DRI	LLING								
Ī					ш	%	E (i		<u>.</u>		AT		RG	AP SF)
	т	₽			Ч Т К Р	RY .	AL UE	Ľ.	N N	T (%			>  >	SE SE
	EPT	APF-0G	MATERIAL DESCRIPTION		MBE	I A	N N N		LINI pcf)	STL EN	≘⊨	₽ E E	Ш Ш Ш	년 년 년
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ſ			Asphalt-8 in. Concrete-5 in											
ľ		(XXX)	(SP) Brown Poorly Graded Sand, Moist, Loose to Medium Der	nse	√ ss	$\bigtriangledown$	4-6-6	-						
ł				4	1	$\square$	(12)							
ł														
2					ss	$\searrow$	3-3-4							
ACH	5			4	/\ 2	$ \longrightarrow $	. (7)	_						
								_						
D C C			SS#3: pH = 8.2		ss	$\left \right\rangle$	3-4-6							
20				ľ ľ	3	$\land$	(10)	-						
ΈNC Υ								-						
						$ \times $	3-4-4							
В И	10			f	-		(0)	-						
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21/10														
H:\20														
- 80:			(ML) Dark Cray Sandy Silt, Trace Mart Wet Medium Dones											
21 11			(ML) Dark Gray Sandy Sin, Trace Man, Wer, Medium Dense		ss		2-7-10	1		04.0	-			
- 5/7/	20			/	7	ert	(17)			24.3				
GDI														
3 AES														
S LAE														
ñ			(SP) Brown Poorly Graded Sand, Moist, Loose											
Z			· · · · · · · · · · · · · · · · · · ·		ss	$\bigtriangledown$	16-4-4				NP	NP	NP	
5 2	25			Ľ	′\ 8	$\mid$	(8)	-						-
N N														
E E E E														
23	-		(CL-ML) Brown to Gray Silty Clay, Moist, Very Stiff											
Hdey					/				-		-			
5						$ \times $	6-9-12 (21)	4.5+		18.7				
ž	30	KKKK		/	V	$\lor$	()							

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Bottom of borehole at 30.0 feet.

	advar		Advanced Engineering Services Inc. 7439 Calumet Avenue Hammond, IN 46324 Telephone: 219 933 7888				B	BOR	ING	S NU	JME	BER PAGE	. <b>SB</b> ≟ 1 0	<b>6-4</b> F 1
	CLIEN	NT <u>Ha</u>	as & Associates	PROJEC		Prop	osed Sanita	ary Co	llectio	n and	Pumpi	ing Sys	stem	
	PROJ	IECT N	UMBER _ 2021-1045G	PROJEC			Lakeshore	Dr & N	Noore	Rd, Lo	ong Be	each, li	ndiana	a
	DATE	STAR	TED _4/22/21         COMPLETED _4/22/21	GROUND	ELEVA		606.25 ft		HOLE	SIZE	4 inc	hes		
	DRILI	LING C	ONTRACTOR GTC	GROUND	WATER	LEVE	LS:							
	DRILI	LING M	ETHOD HSA	${ar  abla}$ at	TIME OF		LING 18.0	00 ft / E	Elev 58	88.25	ft			
	LOGO	GED B	CHECKED BY AZ	AT	END OF	DRILL	ING C	ave at	16 ft.					
	NOTE	<b>S</b> Gro	ound Elevation provided by Client.	AF	ter dri	LLING								
	o DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY %	STD. PEN. TEST SPT (N VALUE)	HAND PEN. (TSF)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)				UNCONF. COMP STRENGTH (TSF)
	 		Asphalt-6.5 in. Concrete-7.5 in. (SP) Brown Poorly Graded Sand, Moist to Wet, Very Loose Medium Dense	e to	SS 1	$\times$	4-6-5 (11)	-			NP	NP	NP	
BEACH.GPJ	5				SS 2	$\mid$	2-4-4 (8)	-						
G LOGS LONG	 				SS 3	$\mid$	2-3-4 (7)	-						
ER IMP\BORIN	10				SS 4	$\square$	4-4-5 (9)	-						
IGBEACH SEW	 				SS 5	X	2-3-5 (8)	-						
045G HAAS LON	15				SS 6	$\left \right\rangle$	4-7-8 (15)	-						
:58 - H:\2021\1	 		Ϋ́											
5/7/21 1					ss 7	$\mathbf{X}$	1-1-1 (2)							
D US LAB AES.GDT			Bottom of borehole at 20.0 feet.											_
UMN - GINT STI														
<b>ZAPHICS BH COL</b>														
REC GF														

CLIENT_Haas & Associates     PROJECT NAME_Proposed Sanitary Collection and Pumping System       PROJECT NAME_Proposed Sanitary Collection and Pumping System     PROJECT CACTION Lakeshore Dr & Moore Rd, Long Beach, Indiana       DATE STARTED_422/21     COMPLETED_4/22/21     GROUND ELEVATION 60389 ft     HOLE SIZE 4 inches       DRILLING CONTRACTOR GTC     GROUND WATER LEVELS:     GROUND WATER LEVELS:     Y AT TIME OF DRILLING	¢	advan	iced en	Advanced Engineering Services Inc. 7439 Calumet Avenue Hammond, IN 46324 Telephone: 219 933 7888				B	OR	ING	9 NU	JME	BER PAGE	<b>SE</b> 1 0	<b>3-5</b> ⊮F 1
PROJECT NUMBER         2021-1045G         PROJECT LOCATION         Lakeshore Dr & Moore Rd, Long Beach, Indiana           DATE STARTED         4/22/21         COMPLETED         4/22/21         GROUND LEVATION         60.399 ft.         HOLE SIZE         4 inches           DRILLING CONTRACTOR         GTC         GTC         GROUND WATER LEVELS:         GROUND W	c		NT <u>Ha</u>	aas & Associates I	PROJEC	T NAME	Prop	osed Sanita	ary Co	llectio	n and	Pump	ng Sy	stem	
DATE STARTED         422/21         COMPLETED         422/21         GROUND LEVATION         603.89 ft         HOLE SIZE         4 Inches           DRILLING CONTRACTOR         GTC         GROUND WATER LEVELS:         GROUND WATER LEVE	P	PROJ	ECT N	IUMBER _2021-1045G I	PROJEC	T LOCAT		Lakeshore	Dr & N	Moore	Rd, Lo	ong Be	each, I	ndiana	<u>a</u>
DRILLING CONTRACTOR_GTC     GROUND WATER LEVELS:       DRILLING METHOD_HSA     Image: Contractor of the state of the	C	DATE	STAR	COMPLETED         4/22/21         0	GROUNI	D ELEVA		603.89 ft		HOLE	SIZE	4 inc	hes		
DRULING METHOD     HSA     ✓ AT TIME OF DRULING     100 (1/ Elev 564.89 ft       LOGGED BY DD     CHECKED BY AZ     ATEND OF DRULING		ORILL	ING C	CONTRACTOR GTC	GROUNI	O WATER	LEVE	LS:							
LOGED BY DD       CHECKED BY AZ       AT END OF DRILLING Cave at 15 ft.         NOTES       Ground Elevation provided by Client.       AFTER DRILLING Cave at 15 ft.         H       Ground Elevation provided by Client.       AFTER DRILLING Cave at 15 ft.         H       Ground Elevation provided by Client.       AFTER DRILLING Cave at 15 ft.         H       Ground Elevation provided by Client.       AFTER DRILLING Cave at 15 ft.         H       Ground Elevation provided by Client.       AFTER DRILLING Cave at 15 ft.         H       Ground Elevation provided by Client.       AFTER DRILLING Cave at 15 ft.         H       Ground Elevation provided by Client.       AFTER DRILLING Cave at 15 ft.         H       Ground Elevation provided by Client.       Matterial DESCRIPTION       Image: Ground Elevation provided Band, Moist to Wet, Loose to Medium         Asphalt-6.5 in.       Concrete-5.5 in.       SS       SS       3-4-5         Ground Elevation Poorly Graded Sand, Moist to Wet, Loose to Medium       SS       SS       3-4-5         Ground Elevation Poorly Graded Sand, Moist to Wet, Loose to Medium       SS       SS       3-4-5         Ground Elevation Poorly Graded Sand, Moist to Wet, Loose to Medium       SS       SS       3-4-5         Ground Elevation Poorly Graded Sand, Moist to Wet, Loose to Medium       SS       SS		ORILL	ING N	NETHOD HSA	arpropto at	TIME OF		LING _19.0	00 ft / E	Elev 5	84.89	ft			
NOTES         Ground Elevation provided by Client.         AFTER DRILLING            H         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U	L	.OGG	SED B	Y _DD CHECKED BY _AZ	AT	END OF	DRILL	.ING C	ave at	15 ft.					
H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H     H <th>Ν</th> <th>NOTE</th> <th><b>S</b> _ Gr</th> <th>ound Elevation provided by Client.</th> <th>AF</th> <th>TER DRI</th> <th>LLING</th> <th></th> <th></th> <th></th> <th>1</th> <th></th> <th></th> <th></th> <th></th>	Ν	NOTE	<b>S</b> _ Gr	ound Elevation provided by Client.	AF	TER DRI	LLING				1				
Asphalt-6.5 in. Concrete-5.5 in. (SP) Brown Poorly Graded Sand, Moist to Wet, Loose to Medium       SS       5-8-9 (18)         5       SS#2: pH = 8.5       SS 3.4-5 (9)         5       SS 4       4-6-5 (11)         6       (9)         10       SS 5         15       SS 6         15       SS 6         15       V ss         16       V ss		0 DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY %	STD. PEN. TEST SPT (N VALUE)	HAND PEN. (TSF)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)				UNCONF. COMP STRENGTH (TSF)
SS#2: pH = 8.5 SS#2: pH = 8.5 SS 3: 3:4-5 (9) SS 3: 4:6-5 (11) SS 5: 5:7.9 (16) SS 5: 5:7.9 (16) SS 5: 5:7.9 (16) SS 3: 4:4-6-5 (11) SS 5: 5:7.9 (16) SS 5: 5:7.9 (17) (17) SS 5: 5:7.9 (17) (17) (17) (17) (17) (17) (17	-	-		Asphalt-6.5 in. <u>Concrete-5.5 in.</u> (SP) Brown Poorly Graded Sand, Moist to Wet, Loose to Mo Dense	/_ edium	ss 1	X	5-9-9 (18)	-						
$ \begin{array}{c}  SS \\ 3 \\ 4 \\ (9) \\ \hline SS \\ 4 \\ (11) \\ \hline SS \\ 5 \\ (16) \\ \hline SS \\ 6 \\ (9) \\ \hline SS \\ 6 \\ (10) \\ \hline SS \\ \hline SS \\ (10) \\ \hline SS \\ \hline SS \\ (10) \\ \hline SS \\ \hline$		5		SS#2: pH = 8.5		ss 2	$\mid$	3-4-5 (9)							
		-				SS 3	$\mid$	3-4-5 (9)	-						
		10				ss 4	$\mid$	4-6-5 (11)							
$ \begin{array}{c}             SS \\             SS \\         $		-				SS 5	$\mathbf{X}$	5-7-9 (16)	-						
		- 15				SS 6	$\square$	3-4-5 (9)	-						
	98 - H:\2021/104	-													
	- 5/7/21 11:5	- 20		∑ 		SS 7	$\times$	4-4-4 (8)	-						

advo		Advanced Engineering Services Inc. 7439 Calumet Avenue Hammond, IN 46324 Telephone: 219 933 7888			В	OR	ING	; NU	JME	BER PAGE	<b>SB</b> ≣ 1 0	F 1
CLIE	NT Ha	aas & Associates		Prop	osed Sanita	ary Co	llectio	n and I	Pumpi	ng Sy	stem	
PRO	JECT N	UMBER _ 2021-1045G	PROJECT LOCATIO	<u></u>	Lakeshore	Dr & N	loore	Rd, Lo	ong Be	each, I	ndiana	1
DAT	E STAR	TED _4/22/21         COMPLETED _4/22/21	GROUND ELEVATION	ON _	608.16 ft		HOLE	SIZE	4 inc	hes		
DRIL	LING C	ONTRACTOR GTC	GROUND WATER L	EVE	LS:							
DRIL	LING N	IETHOD HSA	${ar ar ar \Sigma}$ at time of (	DRILI	LING <u>19.0</u>	0 ft / E	Elev 58	39.16 f	ft			
LOG	GED B	CHECKED BY AZ	AT END OF D	RILL	.ING Ca	ave at	17 ft.					
NOT	<b>ES</b> _Gr	ound Elevation provided by Client.	AFTER DRILL	ING								
	0		L FE	% /	EST UE)	ż	۰T.	E (%)	ATT L		RG	DMP TSF)
DEPTH (ft)	GRAPHIC	MATERIAL DESCRIPTION	SAMPLE TY NUMBEF	RECOVERY	STD. PEN. T SPT (N VAL	HAND PEI (TSF)	DRY UNIT V (pcf)	MOISTUR CONTENT	LIQUID	PLASTIC LIMIT	PLASTICITY INDEX	JNCONF. CO STRENGTH (
0		(SP) Brown Poorly Graded Sand, Moist, Very Loose										20
-			AU 1									
		Hand auger to 6 ft. due to close proximity to existing utilitie	s. AU 2									
			SS 3	$\overline{\langle}$	0-1-1 (2)							
			SS 4	$\times$	0-0-1 (1)							
			SS 5	$\times$	0-1-1 (2)							
			SS 6	$\times$	1-1-1 (2)							
		$\nabla$										
	-	<u></u>	$\left  X \right  \left  \begin{array}{c} ss \\ 7 \end{array} \right  \right\rangle$	$\times$	1-1-1 (2)							
					. ,							
		(MH) Dark Gray Elastic Silt with Marl, Trace Organics, We SS#8: Organics = 9.9%. Marl = 37%	t, Soft	$\times$	1-2-2 (4)	1.25	77.9	45.1	54	23	31	2.0
GKAP -		SS#9: Organics = 4.7%, Marl = 24%	/ ss	$\checkmark$	10-16-27	1 95		57.2				
30 2		(SP) Brown Poorly Graded Sand, Wet, Dense	9	$\land$	(43)	1.25		51.3				

Bottom of borehole at 30.0 feet.

advar		Advanced Engineering Services Inc. 7439 Calumet Avenue Hammond, IN 46324 Telephone: 219 933 7888				E	BOR	ING	5 NU	JME	BER PAGE	: <b>SB</b> ∃ 1 0	<b>5-7</b> F 1
CLIE	NT <u>Ha</u>	as & Associates	PROJEC	T NAME	Propo	osed Sanita	ary Co	llectio	n and	Pumpi	ng Sy	stem	
PRO		UMBER _2021-1045G	PROJEC			_akeshore	Dr & N	Noore	Rd, Lo	ong Be	ach, I	ndiana	1
DATE	STAR	TED         4/26/21         COMPLETED         4/26/21	GROUNI	D ELEVA		616.36 ft		HOLE	SIZE	4 inc	hes		
DRIL	LING C	ONTRACTOR GTC	GROUNI		LEVE	LS:							
DRIL	LING M	ETHOD HSA	AT	TIME OF	DRILI	_ING							
LOG	GED BY	DD     CHECKED BY _ AZ	AT	END OF	DRILL	ING D	ory Cav	ve at 1	7 ft.				
NOTE	S Gro	ound Elevation provided by Client.	AF	TER DRI	LLING								
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		AMPLE TYPE NUMBER	RECOVERY %	FD. PEN. TEST PT (N VALUE)	HAND PEN. (TSF)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT			NCONF. COMP RENGTH (TSF)
0				S	Ľ.	SIS			0		ш	4	STU
		Asphalt-6 in. – Concrete-5 in. (SP) Brown Poorly Graded Sand, Moist, Very Loose to Med Dense	/ łium	ss 1		3-2-3 (5)	-			NP	NP	NP	
				ss 2	$\times$	1-2-2 (4)	-						
				SS 3		2-3-5 (8)	-						
10				ss 4	X	1-2-2 (4)	-						
				ss 5		2-2-4 (6)	_						
15				SS 6	$\mid$	4-4-7 (11)	-						
							_						
					$ \times $	3-3-5 (8)							
20	<u>1 </u>	Bottom of borehole at 20.0 feet.		V N		. /	1	<u> </u>	1	I			

CLIENT Haas & Associates       PROJECT NUMBER 2021-1045G       PROJECT LOCATION         DATE STARTED 4/26/21       COMPLETED 4/26/21       GROUND ELEVATION         DRILLING CONTRACTOR GTC       GROUND WATER LEV         DRILLING METHOD HSA       AT TIME OF DRI         LOGGED BY DD       CHECKED BY AZ       AT TIME OF DRI         NOTES Ground Elevation provided by Client.       AFTER DRILLING         V       Ground Elevation provided by Client.       AFTER DRILLING         U       Hage       MATERIAL DESCRIPTION       July Standard         0       Asphalt-5 in.       Concrete-6.5 in.       SS         0       Asphalt-5 in.       SS       SS         10       (SP) Brown Poorly Graded Sand, Moist, Very Loose to Loose       SS       SS         10       SS       SS       SS       SS       SS         10       SS       SS       SS       SS       SS       SS         10       SS       SS       SS	BORING NUMBER 3 PAGE 1	<b>5B-8</b> OF 1
PROJECT NUMBER 2021-1045G       PROJECT LOCATION         DATE STARTED 4/26/21       GROUND ELEVATION         DRILLING CONTRACTOR GTC       GROUND WATER LEV         DRILLING METHOD HSA       AT TIME OF DRI         LOGGED BY DD       CHECKED BY AZ       AT TIME OF DRI         NOTES Ground Elevation provided by Client.       AFTER DRILLING         Harder Ground Elevation provided by Client.       AFTER DRILLING         U       Asphalt-5 in.         Concrete-6.5 in.       Concrete-6.5 in.         (SP) Brown Poorly Graded Sand, Moist, Very Loose to Loose       SS 1         10       SS 5         10       SS 7         20       Bottom of borehole at 20.0 feet.	sed Sanitary Collection and Pumping Syste	m
DATE STARTED       4/26/21       GROUND ELEVATION         DRILLING CONTRACTOR       GTC       GROUND WATER LEV         DRILLING METHOD       HSA       AT TIME OF DRI         LOGGED BY       DD       CHECKED BY       AT END OF DRI         NOTES       Ground Elevation provided by Client.       AT END OF DRI         NOTES       Ground Elevation provided by Client.       AFTER DRILLING         H       U       W       W         Q       Asphalt-5 in.       Concrete-6.5 in.       SS         Concrete-6.5 in.       (SP) Brown Poorly Graded Sand, Moist, Very Loose to Loose       SS         10       SS       SS       SS         12       SS       SS       SS         13       SS       SS       SS         14       SS       SS       SS         14       SS       SS       SS         15       SS       SS       SS         16       SS       SS       SS         17       SS       SS       SS         18       SS       SS       SS         19       SS       SS       SS         10       SS       SS       SS         20 </th <th>akeshore Dr &amp; Moore Rd, Long Beach, Indi</th> <th>ana</th>	akeshore Dr & Moore Rd, Long Beach, Indi	ana
DRILLING CONTRACTOR GTC       GROUND WATER LEV         DRILLING METHOD HSA       AT TIME OF DRI         LOGGED BY DD       CHECKED BY AZ       AT END OF DRI         NOTES       Ground Elevation provided by Client.       AFTER DRILLIN         H       O       HATERIAL DESCRIPTION       HATERIAL DESCRIPTION         0       Asphalt-5 in.       SS         0       Concrete-6.5 in.       SS         10       Concrete-6.5 in.       SS         10       SS       SS         12       SS       SS         13       SS       SS         14       SS       SS         15       SS       SS         15       SS       SS         14       SS       SS         15       SS       SS         16       SS       SS         17       SS       SS         18       SS       SS         19       SS       SS         10       SS       SS	HOLE SIZE _ 4 inches	
DRILLING METHOD HSA       AT TIME OF DRI         LOGGED BY DD       CHECKED BY AZ       AT END OF DRI         NOTES       Ground Elevation provided by Client.       AFTER DRILLIN         H       D       MATERIAL DESCRIPTION       H         H       D       Asphalt-5 in.       SS         Concrete-6.5 in.       Concrete-6.5 in.       SS         SS       SS       SS         ID       SS       SS         SS       SS       SS         ID       SS       SS         SS       SS       SS         ID	.S:	
LOGGED BY _DD       CHECKED BY _AZ       AT END OF DRIL         NOTES _Ground Elevation provided by Client.       AFTER DRILLIN         H	ING	
NOTES       Ground Elevation provided by Client.       AFTER DRILLIN         H       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U       U	NG Dry Cave at 17 ft.	
Image: second		
Asphalt-5 in. Concrete-6.5 in. (SP) Brown Poorly Graded Sand, Moist, Very Loose to Loose SS SS SS SS SS SS SS SS SS S	STD. PEN. TEST SPT (N VALUE) HAND PEN. (TSF) DRY UNIT WT. (pcf) MOISTURE CONTENT (%) LIQUID LIMIT PLASTICT LIMIT PLASTICT	INDEX UNCONF. COMP STRENGTH (TSF)
5     5       5     5       10     5       10     5       10     5       10     5       10     5       10     5       10     5       10     5       10     5       10     5       10     5       10     5       5     5       5     5       5     5       5     5       5     5       5     5       5     5       5     5       5     5       5     5       5     5       5     5       5     5       5     5       5     5       5     5       5     5       5     5       5     5       5     5       6     5       7     5       7     5       7     5       7     5       7     5       7     5       7     5	3-3-5 (8)	
$ \begin{array}{c}                                     $	2-1-2 (3)	
$\begin{bmatrix} 10 \\ 10 \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ 4 \\ - \\ SS \\ 5 \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ 6 \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ 6 \\ - \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ 6 \\ - \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ 6 \\ - \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ 6 \\ - \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ 6 \\ - \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ 6 \\ - \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ 6 \\ - \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ 6 \\ - \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ 6 \\ - \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ - \\ - \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ - \\ - \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ 20 \end{bmatrix}$ $\begin{bmatrix} SS \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - $	1-2-2 (4)	
Image: state of the state	1-2-3 (5)	
15     SS       15     6       20     Bottom of borehole at 20.0 feet.	2-2-3 (5)	
Bottom of borehole at 20.0 feet.	1-1-2 (3)	
Bottom of borehole at 20.0 feet.		
Bottom of borehole at 20.0 feet.	2-2-3 (5)	

0	idvan		Advanced Engineering Services Inc. 7439 Calumet Avenue Hammond, IN 46324 Telephone: 219 933 7888				E	SOR	ING	i NU	JMF	SER PAGE	. <b>SB</b> ∃ 1 0	F 1
c		NT Ha	aas & Associates	PROJEC	T NAME	Propo	sed Sanit	ary Co	llectio	n and	Pumpi	ng Sy	stem	
Р	ROJ	ECT N	UMBER _2021-1045G	PROJEC	T LOCAT		akeshore	Dr & N	Noore	Rd, Lo	ong Be	ach, I	ndiana	1
D	ATE	STAR	TED4/26/21         COMPLETED4/26/21	GROUNE	ELEVA		604.84 ft		HOLE	SIZE	4 inc	hes		
D	RILL	ING C	ONTRACTOR GTC	GROUNE	WATER		_S:							
D	RILL	ING N	IETHOD HSA	AT	TIME OF	DRILL	.ING							
L	OGG	ED B	CHECKED BY AZ	AT	END OF	DRILL	ING D	ry Cav	ve at 1	7 ft.				
N	ΟΤΕ	<b>S</b> _ Gr	ound Elevation provided by Client.	AF	TER DRI	LLING								
ОЕРТИ	0 (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY %	STD. PEN. TEST SPT (N VALUE)	HAND PEN. (TSF)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)			PLASTICITY D	UNCONF. COMP STRENGTH (TSF)
-	-		Asphalt-4 in. Concrete-7.5 in. (SP) Brown Poorly Graded Sand, Moist to Wet, Very Loos Medium Dense	 se to	SS 1		4-4-7 (11)	-						
	5				SS 2		4-5-6 (11)							
	-				SS 3	X	4-5-5 (10)	-						
	- 10				SS 4		5-7-8 (15)	-						
	-				ss 5		3-3-3 (6)	-						
	- 15				SS 6	X	1-2-1 (3)	_						
	-							_						
	20					X	(2)							
ייין כטבטאווי - פוויו טוד טט באם אבט.טדין -		<u>.</u>	Bottom of borehole at 20.0 feet.											

	advan	ced eng	Advanced Engineering Services Inc. 7439 Calumet Avenue Hammond, IN 46324 Telephone: 219 933 7888				BC	DRII	NG	NUI	MBI	ER ( PAGE	<b>SB-</b> ≞ 1 C	<b>10</b> DF 1
	CLIEN	IT <u>Ha</u>	as & Associates	PROJEC	T NAME	Prop	osed Sanit	ary Co	llectio	n and	Pump	ing Sy	stem	
	PROJ	ECT N	UMBER _2021-1045G	PROJEC	T LOCAT		Lakeshore	Dr & N	Noore	Rd, Lo	ong Be	each, I	ndiana	a
	DATE	STAR	TED _4/23/21         COMPLETED _4/23/21	GROUNE	ELEVA		598.99 ft		HOLE	SIZE	4 inc	hes		
	DRILL	ING C	ONTRACTOR GTC		WATER	LEVE	LS:							
	DRILL	ING M	IETHOD HSA	⊥×AT	TIME OF		LING <u>19.0</u>	00 ft / E	Elev 5	79.99 ·	ft			
	LOGO		CHECKED BY AZ	AT			<b>.ING</b> D	ry Cav	e at 1	1 ft.				
	NOTE	3 <u> </u>		AF				1					RC	
		o			R PE	Χ %	LEST UE)	ż	Υ. Υ	ц (%)			S	OMF (TSF
	РТН (f)	Hag	MATERIAL DESCRIPTION		IBEF 1BEF	/ER	L. N VAL	SF)	L U U U	IN THE		₽_	È×	L.U.
	DE)	GRA L(			MPL	CO	E N		l⊇ G  ≻	10IS	Ng №	AST IMI	STIC PIC	NON ENG
	0				SA	L R	STD SP		DR	20			PLA	STR
ŀ	0		Asphalt-3.5 inch			Ь								
		××××	(SP) Brown Poorly Graded Sand, Moist to Wet, Very Loos	^` ie	AU									
ŀ					1									
ł					_	H <b>K</b>								
GР			Hand auger to 6 ft. due to close proximity to existing utilitie	es.	AU									
ACH	5				2									
NGB								-						
SS LC			SS#3: pH = 8.6			$ \times $	6-6-5 (11)							
о С С					<u>/ \</u>			-						
ORIN					/ 55	k	2-2-2	-						
MP/B	10				4	ert	(4)							
NER								]						
H SE					V ss	$\bigtriangledown$	2-3-2							
BEAC					5	$\mid \bigtriangleup$	(5)	-						
ONG.														
AASI							1-1-1							
5G H	15				/ \ `		(2)	-						
21/104														
H:\202														
- 128														
/21 11			<u> </u>		√ ss	$\bigtriangledown$	4-9-16	0.5	-	01.0				
- 5/7	20		(CL-ML) Gray Silty Clay with Marl, Trace Organics, Moist, Stiff	Very	Å 7		(25)	2.5		31.9				
S.GDT			SS#7: Organics = 3.2%, Marl = 27%											
B AES														
AJ SL			(ML) Brown to Gray Sandy Silt, Moist, Very Dense											
STDL								-						
INI					$\mathbb{A}^{33}_{8}$	$\mid \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$	17-50/5"	-						
- NM	25													
5 0 1 0														
BH														
DHIC C														
GRA					X ss	$\mathbf{\mathbf{x}}$	40-50/4"	1						
REC	30					$\square$		1						

Bottom of borehole at 30.0 feet.

C	Advanced Engineering Services Inc. 7439 Calumet Avenue Hammond, IN 46324 Telephone: 219 933 7888							<b>SB-</b> ≞ 1 0	<b>11</b> 0F 1					
c	LIEN	IT <u>Ha</u>	as & Associates F	PROJEC	T NAME	Prop	osed Sanita	ary Co	llectio	n and	Pumpi	ing Sy	stem	
Р	ROJ	ECT N	UMBER _2021-1045G F	PROJEC	T LOCAT		Lakeshore	Dr & N	loore	Rd, Lo	ong Be	each, I	ndiana	a
D	ATE	STAR	TED _4/23/21         COMPLETED _4/23/21         Q	GROUNE	ELEVA		610.56 ft		HOLE	SIZE	4 inc	hes		
D	RILL	ING C	ONTRACTOR GTC C	GROUNE	WATER	LEVE	LS:							
D	RILL	ING M	ETHOD HSA	$\Sigma$ at	TIME OF	DRIL	LING	)0 ft / E	Elev 59	99.56	ft			
L	OGG	ED B	CHECKED BY AZ	AT	END OF	DRILL	.ING							
N	ΙΟΤΕ	S Gro	ound Elevation provided by Client.	AF	ter Drii	LING								
DEDTU	0 (ff) (ff)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY %	STD. PEN. TEST SPT (N VALUE)	HAND PEN. (TSF)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIMIT LIMIT			UNCONF. COMP STRENGTH (TSF)
Γ			(FILL) Brown to Dark Brown Sandy Clay with Topsoil											
_	-		(FILL) Gray to Dark Gray Silty Sand, Moist		ss s	X	3-4-5 (9)	-						
	-	KXXXX	(SP) Brown Poorly Graded Sand, Moist, Very Loose to Loos	 se				-						
ц Ч С Ц С Ц С	5					igta	3-2-4 (6)							
GBEA														
	_				$\bigvee ss_3$	$\searrow$	2-2-2 (4)							
	_					$\sim$	( )							
	_		(SM) Brown to Dark Brown Silty Sand, Trace Organics, Mois Very Loose	st,	V ss	$\bigtriangledown$	1-0-1	-		<b>FF F</b>				
л ТМГ –	10		SS#4: Organics = 7.4%		4	$\bigtriangleup$	(1)			55.5				
	-		✓ (CL-ML) Dark Gray to Black Silty Clay, Trace Organics, Wei	t, Very	√ ss		0-0-0							
	-		Soft SS#5: Organics = 2.4%		5	$\bigtriangleup$	(0)	<0.25		29.3				
	_		(SP) Brown to Gray Poorly Graded Sand, Moist to Wet, Med	 dium	1 55		7-12-16	-						
C HAN	15		Dense to Dense		6	$\square$	(28)	-						
C#01/10	_													
707.:Н	-													
- 80:11	-							-						
17///9	- 20				ss 7	$\ge$	15-18-15 (33)							
- 	20				/ N			-						
AES.(	-													
- LAB	-													
	-							-						
- GIN	- 25					$\mid$	6-15-22 (37)							
	20				/ 1									
	-													
3	-													
	-		(CL) Gray Lean Clay, Moist, Very Stiff			ļ							<b> </b>	
					SS 9		6-8-14 (22)	4.5+	118.5	16.4	27	17	10	4.5

	advan		gineering services Te	dvanced Eng 439 Calumet ammond, IN elephone: 21	ineering Services Inc Avenue 46324 I9 933 7888	5.			BC	JRII	NG	NUI	MBI	ER S PAGE	<b>5B-</b> ≞ 1 0	<b>12</b> 0F 1
	CLIEN	NT <u>Ha</u>	as & Associates			PROJE	CT NAME	Prop	osed Sanit	ary Co	llectio	n and	Pumpi	ing Sy	stem	
	PROJ	ECT N	UMBER _ 2021-10	045G		PROJE	CT LOCA		Lakeshore	Dr & N	Moore	Rd, Lo	ong Be	each, l	ndiana	a
	DATE	STAR	TED <u>4/23/21</u>	cc	MPLETED 4/23/21	GROU	ND ELEVA		607.76 ft		HOLE	SIZE	4 inc	hes		
	DRILL			STC		GROU			LS:							
	DRILL		IETHOD <u>HSA</u>					F DRIL	LING <u>5.50</u>	Oft/El	lev 602	2.26 ft	0.000			
	NOTE	S Gr	ound Elevation pr	ovided by Cli	ient	±/						0.70 IL	Cavea			
╞									÷.				ATT	ERBE	RG	ЪЪ
	o DEPTH (ft)	GRAPHIC LOG		MATER	IAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY %	STD. PEN. TES SPT (N VALUE	HAND PEN. (TSF)	DRY UNIT WT (pcf)	MOISTURE CONTENT (%)	LIQUID			UNCONF. COM STRENGTH (TS
-			Asphalt-7.5 in Concrete-5 in (FILL) Dark B	n.  rown to Gray	v Silty Sand, Trace O	rganics, Moist	 AU 1					13.3				
BEACH.GPJ	 - 5		▼ (SM) Black Si SS#2: pH = 8 ∑	ilty Sand with	organics, Moist to V = 28.8%	Wet, Very Loose	AU 2					174.8				
G LOGS LONG			SS#3: Organi	ics = 10.1%			SS 3		1-1-1 (2)	-		90.5				
ER IMP\BORIN			(SP) Gray Po Medium Dens	orly Graded se	Sand, Trace Gravel,	Moist to Wet,	SS 4	X	5-9-10 (19)	-						
<b>IGBEACH SEW</b>							SS 5		7-10-13 (23)	-						
045G HAAS LOI	15						SS 6		8-11-14 (25)	-						
1:58 - H:\2021\1																
5/7/21 1							SS 7	$\geq$	7-6-7							
3DT - E	20			Bottom of	of borehole at 20.0 fe	et.	/ \	1	(13)							
S BH COLUMN - GINT STD US LAB AES																
REC GRAPHIC																

	advan	iced en	Advanced Engineering Services Inc. 7439 Calumet Avenue Hammond, IN 46324 Telephone: 219 933 7888				BC	DRII	NG	NUI	MBE	PAGE	<b>SB-</b> ' ≞ 1 0	<b>13</b> F 1
	CLIEN	NT <u>Ha</u>	aas & Associates	PROJEC	T NAME	Propo	osed Sanita	ary Co	llectio	n and	Pumpi	ng Sy	stem	
	PROJ	ECT N	UMBER _2021-1045G	PROJEC	T LOCAT		Lakeshore	Dr & N	Noore	Rd, Lo	ong Be	ach, I	ndiana	a
	DATE	STAR	COMPLETED         4/23/21	GROUN	ELEVA		608.74 ft		HOLE	SIZE	4 inc	hes		
	DRILL		CONTRACTOR GTC	GROUN	WATER	LEVE	LS:							
	DRILL	ING N	IETHOD HSA	⊥¥ AT	TIME OF	DRILI	LING 4.50	) ft / El	ev 60	4.24 ft				
	LOGO	SED B	Y DD CHECKED BY AZ	⊥ AT	END OF	DRILL	<b>ING</b> <u>4.00</u>	ft / Ele	ev 604	1.74 ft (	Cave a	at 8 ft.		
	NOTE	: <b>S</b> _Gr	ound Elevation provided by Client.	AF				1		1	A T T			
	o DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY %	STD. PEN. TEST SPT (N VALUE)	HAND PEN. (TSF)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)				UNCONF. COMP STRENGTH (TSF
	_		Asphalt-12 in. Concrete-6 in.											
	-		(SM) Black Silty Sand with Organics, Moist to Wet, Very L SS#1: Organics = 34.7%	.00se	$\bigvee ss_1$		0-1-2 (3)	-		481.4				
ACH.GPJ	5		▼ ∑ SS#2: Organics = 25.2%		ss 2	$\square$	0-1-1 (2)	-		264.7				
I I	-	<u> </u>	(SP-SM) Gray to Dark Gray Poorly Graded Sand with Silt, Organics, Wet, Medium Dense SS#1: Organics = 6.9%	Trace	SS 3		8-10-12 (22)	-		58.8				
	- - 10		(SP) Brown to Gray Poorly Graded Sand, Wet, Medium D	 ense	SS 4	$\times$	6-9-11 (20)	-						
IGBEACH SEWE	-				ss 5		5-10-16 (26)	-						
045G HAAS LON	15				SS 6		9-13-15 (28)	-						
:58 - H:\2021\1(	-													
5/7/21 11	-				ss 7	$\mathbf{\mathbf{X}}$	2-3-9							
<u>i</u>	20		Bottom of borehole at 20.0 feet.		/ / /		(14)	<u> </u>						
UMN - GINT STD US LAB AES.G														
REC GRAPHICS BH COI														

	advan		Advanced Engineering Services Inc. 7439 Calumet Avenue Hammond, IN 46324 Telephone: 219 933 7888				B	JRII	NG	NUI	ИВI	ER 3 Page	5 <b>B-</b> 1 0	<b>14</b> )F 1
	CLIEN	NT <u>Ha</u>	aas & Associates	PROJEC	T NAME	Propo	osed Sanit	ary Co	llectio	n and	Pump	ing Sy	stem	
	PROJ	IECT N	UMBER 2021-1045G	PROJEC	T LOCAT		_akeshore	Dr & N	Noore	Rd, Lo	ong Be	each, I	ndiana	a
	DATE	STAR	COMPLETED         4/23/21	GROUN	DELEVA		611.76 ft		HOLE	SIZE	4 inc	hes		
	DRILL	LING C	CONTRACTOR GTC	GROUN	) WATER		LS:							
	DRILL		IETHOD HSA		TIME OF		_ING							
	LOGO		Y _DD CHECKED BY _AZ	- <b>▼</b> A1			ING <u>5.00</u>	ft / Ele	ev 606	.76 ft	Cave	at 6 ft.		
	NOTE	: <b>s</b>	ound Elevation provided by Client.	Ar				1					PC	
	o DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY %	STD. PEN. TEST SPT (N VALUE)	HAND PEN. (TSF)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)				UNCONF. COMF STRENGTH (TSF
			Asphalt-4 in. Slag-4.5 in. (FILL) Dark Brown Silty Sand with Slag, Trace Organics (SM) Dark Brown Silty Sand, Moist, Very Loose		ss 1		3-2-2 (4)	-						
ر ر			(,,,,,,,,,,,,,,				2 2 2 2	_						
BEACH.GI	5		SS#2: pH = 8.3 ▼_		2		(4)	_						
LOGS LONG			(SP) Brown to Gray Poorly Graded Sand, Moist to Wet, M Dense	 1edium	SS 3		4-5-6 (11)	-						
R IMP\BORING	 				ss 4		4-6-9 (15)							
EACH SEWER					ss 5	$\ge$	6-6-11 (17)	-			NP	NP	NP	-
AS LONGBE					∬ ss		5-8-9	-						
\1045G HA/					6		(17)	_						
:58 - H:\2021														
- 5/7/21 1					SS 7	$\ge$	7-4-7 (11)							
EC GRAPHICS BH COLUMN - GINT STD US LAB AES.GDT			Bottom of borehole at 20.0 feet.											

	advan	ced eng	Advanced Engineering Services Inc. 7439 Calumet Avenue Hammond, IN 46324 Telephone: 219 933 7888				BC	JRII	NG	NUI	MB	ER S Page	<b>5B-</b> 1 0	<b>15</b> 0F 1
	CLIEN	NT <u>Ha</u>	as & Associates	PROJEC	T NAME	Prop	osed Sanit	ary Co	llectio	n and	Pumpi	ing Sy	stem	
	PROJ	ECT N	UMBER _2021-1045G	PROJEC	T LOCAT		Lakeshore	Dr & N	Noore	Rd, Lo	ong Be	each, I	ndiana	a
	DATE	STAR	TED _4/23/21         COMPLETED _4/23/21	GROUNE	ELEVA		620.43 ft		HOLE	SIZE	4 inc	hes		
	DRILL	ING C	ONTRACTOR GTC	GROUNE	WATER	LEVE	LS:							
	DRILL	ING M	IETHOD HSA	AT	TIME OF	DRIL	LING							
	LOGO	SED B	CHECKED BY AZ	AT	END OF	DRILL	_ING							
	NOTE	S <u>Gr</u>	ound Elevation provided by Client.	AF	TER DRI			1	1					
	o DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY %	STD. PEN. TEST SPT (N VALUE)	HAND PEN. (TSF)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)				UNCONF. COMP STRENGTH (TSF)
			Asphalt-4.5 in.											
			(FILL) Brown to Dark Brown Silty Sand, Trace Organics		ss 1		3-2-2 (4)	_						
	5				SS 2		3-4-4 (8)							
			(SP) Brown Poorly Graded Sand, Moist to Wet, Very Loose Medium Dense	e to	√ ss		3-4-4							
					3		(8)	-						
	10				SS 4		4-3-5 (8)	-						
					SS 5		5-6-9 (15)	_						
					ss 6		1-2-1 (3)	_						
	<u>15</u>				/ \ -									
171						$\bowtie$	3-5-5							
ĺ	20		Bottom of borehole at 20.0 feet.		/\'		(10)							
טואוא - פוואן אוים האם אבאיפ														



#### **GRAIN SIZE DISTRIBUTION**



12:31 - H:/2021/1045G HAAS LONGBEACH SEWER IMP\BORING LOGS LONGBEACH GPJ 5/5/21 US LAB.GDT STD GINT **GRAIN SIZE** 



#### **GRAIN SIZE DISTRIBUTION**





Advanced Engineering Services Inc. 7439 Calumet Avenue Hammond, IN 46324 Telephone: 219 933 7888

#### **GRAIN SIZE DISTRIBUTION**



GRAIN SIZE - GINT STD US LAB.GDT - 5/5/21 12:31 - H:202111045G HAAS LONGBEACH SEWER IMPIBORING LOGS LONGBEACH.GPJ



#### **GRAIN SIZE DISTRIBUTION**





Advanced Engineering Services Inc. 7439 Calumet Avenue Hammond, IN 46324 Telephone: 219 933 7888

## **ATTERBERG LIMITS' RESULTS**





### **UNCONFINED COMPRESSION TEST**



PROJECT NAME Proposed Sanitary Collection and Pumping System PROJECT LOCATION Lakeshore Dr & Moore Rd, Long Beach, Indiana

PROJECT NUMBER 2021-1045G



STRAIN, %

B	OREHOLE	DEPTH	Classification	γ _d	MC%
ullet	SB-6	23.5	ELASTIC SILT (MH)	78	45

UNCONFINED - GINT STD US LAB.GDT - 5/4/21 11:19 - H:2021/1045G HAAS LONGBEACH SEWER IMPIBORING LOGS LONGBEACH.GPJ



### **UNCONFINED COMPRESSION TEST**



PROJECT NAME Proposed Sanitary Collection and Pumping System PROJECT LOCATION Lakeshore Dr & Moore Rd, Long Beach, Indiana

PROJECT NUMBER 2021-1045G



STRAIN, %

B	OREHOLE	DEPTH	Classification	$\gamma_{\rm d}$	MC%
$\bullet$	SB-11	28.5	LEAN CLAY (CL)	118	16

UNCONFINED - GINT STD US LAB.GDT - 5/4/21 11:20 - H:2021/1045G HAAS LONGBEACH SEWER IMPIBORING LOGS LONGBEACH.GPJ



#### FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

#### NON-COHESIVE SOILS (Silt, Sand, Gravel and Combinations)

<u>Density</u>		Particle Si	ze Identific	cation
Very Loose	5 blows/ft or less	Boulders	12 inch di	ameter or more
Loose	6 to 10 blows/ft	Cobbles	12 to 3 inc	ch diameter
Medium Dense	11 to 30 blows/ft	Gravel	Coarse	3 to 3/4 inch
Dense	31 to 50 blows/ft		Fine	3/4 inch to 4.75mm (No. 4)
Very Dense	51 blows/ft or more	Sand	Course	4.75mm to 2mm (No. 10)
				(dia. Of pencil lead)
			Medium	2.00mm to 0.425mm (No.40)
Relative Proportions				(Dia. of broom straw)
<u>Descriptive</u>	Percent		Fine	0.425mm to 0.075mm (No.200)
Trace	1 to 10			(dia. of human hair)
Little	11 to 20	Silt/Clay		0.075mm or Smaller
Some	21 to 35			(cannot see particles)
And	36 to 50			

#### COHESIVE SOILS

#### (Clay, Silt and combinations)

<u>Consistency</u>		<u>Plasticity</u>		
Very Soft	3 blows/ft or less	Degree of Plasticity	Plasticity Index	
Soft	4 to 5 blows/ft	None to slight	0 to 4	
Medium Stiff	6 to 10 blows/ft	Slight	5 to 7	
Stiff	11 to 15 blows/ft	Medium	8 to 22	
very Stiff	16 to 30 blows/ft	High to Very High	over 22	
Hard	31 blows/ft or more			

Classification on logs are made by visual inspection of samples.

Standard Penetration Test (SPT)- Driving a 2.0" O.D. 1-3/8" I.D. sampler a distance of 1ft into undisturbed soil with a 140 pound hammer free falling a distance of 30.0 inches. It is customary for ATC to drive the spoon 6.0 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the test are recorded for each 6.0 inches of penetration on the drill log (Example-6/8/9). The standard penetration test result can be obtgained by adding the last two figures (i.e., 8+9=17 blows/ft). (ASTM D-1586-08).

Stara Changes - In the column "Soil Descriptions" on the drill log the horizontal lines represent strata changes. A solid line (____) represents an actually observed change. A dashed line (____) represents an estimated change.

Groundwater observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc., may cause changes in the water levels indicated on the logs.

# SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL
			GRAPH	LETTER	DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS		sw	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES		SM	SILTY SANDS, SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
		LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
FINE GRAINED	SILTS AND CLAYS			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
30123				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE		LIQUID LIMIT GREATER THAN 50		МН	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
	SILTS AND CLAYS			СН	INORGANIC CLAYS OF HIGH PLASTICITY
				ОН	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			राज्य कर स्व इ.स. २० वर यह कर कर स्व	РТ	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS