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Project Manual for
**TOWN OF WHEATLAND,
INDIANA**



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Wheatland Wastewater System Improvements
Division II – Low Pressure Sewer System

Prepared by: **RQAW**
DCCM

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**TOWN OF WHEATLAND, INDIANA
WHEATLAND WASTEWATER SYSTEM DIVISION II – LOW PRESSURE SEWER SYSTEM**

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**Wheatland Wastewater System Improvements Division II – Low Pressure
Sewer System
Invitation for Bid Publication**

Notice is hereby given, that the Town of Wheatland, in Knox County, Indiana, by and through its Town Council, hereinafter referred to as the Owner, will receive sealed bid packets for the construction of the Wheatland Wastewater System Improvements Project.

Sealed bids must be received by the Town no later than 9:00 A.M. (Local Time) on September 29th, 2023. Bids received after such hour will be returned unopened. Bids received prior to this time shall be opened at a public meeting scheduled to take place on September 29th, 2023 at 9:00 A.M. at the Wheatland Water Department, 121 IN-550, Wheatland, IN 47597. All interested citizens are invited to attend. Should any citizens require special provisions, such as handicapped modifications or non- English translation personnel, the Town will provide such provisions as long as the request is made by September 20th, 2023. The last day for questions is September 20th, 2023.

A pre-bid meeting will be held at 10:00 A.M. (Local Time) on September 8th, 2023 at the Wheatland Water Department, 121 IN-550, Wheatland, IN 47597. All prime contractors, subcontractors, small, minority or women owned enterprises and other interested parties are invited to attend.

A final addendum will be issued no later than September 27th, 2023.

The Project will be constructed in one (1) contract division which are defined and outlined as follows:

The project includes the installation of a new low pressure sewer system for the Town of Wheatland, IN. This system would eliminate the existing failing septic systems throughout town. The project will include more than 24,000 LFT of low-pressure sewer pipe and approximately 212 grinder pump stations, which will serve a population of roughly 450.

Copies of the Plans and Contract Documents and Specifications for each division of work may be obtained from the "Public Documents" section of the RQAW website at <https://rqaw.com/public-documents/>.

The work to be performed and the bid to be submitted shall include sufficient and proper sums for all general construction, mechanical installation, labor, materials, permits, licenses, insurance, and so forth incidental to and required for the construction of the facilities.

Each bid must be enclosed in a sealed envelope bearing the title of the Project and the name and address of Bidder. All bids must be submitted on the bid forms as identified in the Contract Documents and Specifications.

Each bid shall be accompanied by a certified check or acceptable bidder's bond made payable to the Owner, in a sum of not less than five percent (5%) of the total amount of the highest aggregate

bid, which check or bond will be held by the Owner as evidence that the bidder will, if awarded the contract, enter into the same with the Owner upon notification from him to do so within ten (10) days of said notification.

Approved performance and payment bonds guaranteeing faithful and proper performance of the work and materials, to be executed by an acceptable surety company, will be required of the Contractor at the time of contract execution. The bonds will be in the amount of 100% of the Contract Price and must be in full force and effect throughout the term of the Construction Contract plus a period of twelve (12) months from the date of substantial completion.

The Owner reserves the right to reject any bid, or all bids, or to accept any bid or bids, or to make such combination of bids as may seem desirable, and to waive any and all informalities in bidding. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bid may be withdrawn after the scheduled closing time for receipt of bids for at least ninety (90) days.

A conditional or qualified Bid will not be accepted.

Award will be made to the low, responsive, responsible bidder. The low, responsive, responsible bidder must not be debarred, suspended, or otherwise be excluded from or ineligible for participation in federally assisted programs under Executive Order 12549.

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

Bids shall be properly and completely executed on bid forms included in the Specifications. Bids shall include all information requested by Indiana Form 96 (Revised 2013) included with the Specifications. Under Section III of Form 96, the Bidder shall submit a financial statement. A copy of the proposed Financial Statement to be submitted with the bid is included in the bid documents section to these specifications. The Owner may make such investigations as deemed necessary to determine the ability of the Bidder to perform the work and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Agreement and to complete the work contemplated therein.

Each Bidder is responsible for inspecting the Project site(s) and for reading and being thoroughly familiar with the Contract Documents and Specifications. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve any Bidder from any obligation with respect to its Bid.

Wage rates on the project shall not be less than the federal wage scale published by the U.S. Department of Labor.

Bidders on this work shall be required to comply with the provisions of the President's Executive Order No. 11246, as amended. The Bidders shall also comply with the requirements of 41 CFR

Part 60 - 4 entitled Construction Contractors - Affirmative Action Requirements. A copy of 41 CFR Part 60 - 4 may be found in the Supplemental General Conditions of the Contract Documents and Specifications.

Contract procurement is subject to the federal regulations contained in the OMB Circular A-102, Sections B and O and the State of Indiana requirements contained in IC-36-1-9 and IC-36-1-12.

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INSTRUCTIONS TO BIDDERS

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ARTICLE 1 – DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

- A. *Issuing Office* – The office from which the Bidding Documents are to be issued. The Issuing Office is as stated in Section 00 11 13 - Advertisement for Bids.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

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

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit with its Bid (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:
- A. Evidence of Bidder's authority to do business in the state where the Project is located.
- B. Bidder's state or other contractor license number, if applicable.
- C. Subcontractor and Supplier qualification information; coordinate with provisions of Article 12 of these Instructions, "Subcontractors, Suppliers, and Others."
- D. Contractor's Bid for Public Work - Form 96
- E. SRF Documents due at time of Bid
1. Form OEE-1
 2. Form OEE-2
 3. Green Project Reserve Bid Breakdown Form
 4. American Iron and Steel Certification
- F. SRF Documents due 48 hours after Bid Opening
1. Form 6100-3
 2. Form 6100-4
 3. Bidder's List Form
 4. Good Faith Efforts Worksheet

- 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. No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.
- 3.03 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

4.01 *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.

4.02 *Existing Site Conditions*

- A. Subsurface and Physical Conditions;
1. In the preparation of the Contract Documents, Engineer relied upon the following reports of explorations and tests of subsurface conditions at the Site of the Work.
 - a. A report prepared by Atlas Technical Consultants, LLC, Indianapolis, Indiana.
 - b. The reports and drawings referenced above 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.
 2. No reports or drawings relating to Hazardous Environmental Conditions have been identified at or adjacent to the Site.
- B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.
- C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or

indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 *Site Visit and Testing by Bidders*

- A. Bidder shall conduct the required Site visit during normal working hours and shall not disturb any ongoing operations at the Site. Bidders must advise Ms. Erika Goble at (812) 321-2340 of the date and time they desire to conduct their Site visit.
- B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder 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.
- D. Bidder shall 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.
- E. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.04 *Owner's Safety Program*

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

4.05 *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 5 – BIDDER'S REPRESENTATIONS

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

- A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;

- B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work; carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;
- D. consider 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 Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;
- E. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- F. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- G. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;
- H. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and
- I. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 6 – PRE-BID CONFERENCE

- 6.01 A Pre-Bid conference will be held at the time and location stated in the invitation to bids. Representatives of Owner and Engineer will be present to discuss the Project. Engineer will transmit to all planholders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

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

ARTICLE 8 – BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's maximum Bid price and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.
- 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 Documents, 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 Documents 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. Such forfeiture shall 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 seven 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 seven 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 substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

- 10.01 Provisions for liquidated damages, if any, for failure to timely attain Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND "OR-EQUAL" ITEMS

- 11.01 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.

- 11.02 All prices that Bidder sets forth in its Bid shall 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 12 – SUBCONTRACTORS, SUPPLIERS AND OTHERS

- 12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 12.02 Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.
- 12.03 The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work:
- A. Directional Drilling Subcontractor
 - B. Under-Railroad Sewer Installation Subcontractor (if different than above)
 - C. Low pressure Sewer System Grinder Pump Supplier (if different than Environmental One Corporation)
 - D. Pipe Supplier

Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

- 12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

ARTICLE 13 – PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, 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.”
- 13.02 A Bid by a corporation shall 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 seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown.
- 13.03 A Bid by a partnership shall 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 shall be shown.
- 13.04 A Bid by a limited liability company shall 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 shall be shown.
- 13.05 A Bid by an individual shall show the Bidder’s name and official address.
- 13.06 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.07 All names shall be printed in ink below the signatures.
- 13.08 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.09 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.10 The Bid shall contain evidence of Bidder’s authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder’s state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID

- 14.01 Base Bid with Alternates
- A. Bidders shall submit a Bid on a unit price basis for the base Bid and include a separate price for each alternate described in the Bidding Documents and as provided for in the Bid Form. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate.

- B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form.

14.02 Allowances

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

ARTICLE 15 – SUBMITTAL OF BID

- 15.01 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement to bid and shall 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 shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to:

Ms. Erika Goble, Deputy Clerk
Town of Wheatland
P.O. Box 219
Wheatland, IN 47597

- 15.02 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 16 – MODIFICATION AND WITHDRAWAL OF BID

- 16.01 A 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.
- 16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 16.03 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, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 – OPENING OF BIDS

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

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. 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, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.

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

19.03 Evaluation of Bids

- A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- B. The Successful Bidder will be selected based on their base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.”

19.04 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.

19.05 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 20 – BONDS AND INSURANCE

20.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner’s requirements as to performance, payment, and maintenance bonds and insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

ARTICLE 21 – SIGNING OF AGREEMENT

21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall 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 shall 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 ten days thereafter, Owner shall 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 22 – SALES AND USE TAXES

22.01 Owner is exempt from Indiana state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes shall not be included in the Bid. Refer to Paragraph SC-7.09 of the Supplementary Conditions for additional information.

ARTICLE 23 – SRF LOAN REQUIREMENTS

23.01 Financing for this project is expected to be through the Indiana Finance Authority State Revolving Fund Program. The SRF forms listed in Article 3.01 shall be submitted to the Owner by the prescribed date.

23.02 Davis-Bacon Wages

- A. Bidder shall take note that wages paid throughout the project must meet or exceed those outlined in the Davis-Bacon Wage guidelines provided in Exhibit A of the Bidding Documents.

23.03 U.S. EPA Green Project Reserve Program

- A. Certain portions of components of this Project, which are described in the GPR Bid Breakdown Form (Exhibit D) furnished with the Bid Documents, qualify for the U.S. EPA Green Project Reserve (GPR) Program and/or Sustainability Incentive offered by the Indiana State Revolving Fund (SRF) Loan Program. Bidders shall complete the GPR Bid Breakdown form and submit the completed form with its Bid. This information is required by the U.S. EPA and the Indiana Finance Authority SRF Program and Bidder's failure to fully and accurately complete the GPR Bid Breakdown form and submit it with its Bid may result in the Bid being rejected as non-responsive.

(NO TEXT FOR THIS PAGE)

RQAW Corporation

Wheatland Wastewater System Improvements
Division II – Low Pressure Sewer System

BID FORM

Town of Wheatland, Indiana

Wheatland Wastewater System Improvements Division II – Low Pressure Sewer System

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

Town of Wheatland

P.O. Box 219

Wheatland, IN 47597

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

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

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

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

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

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

- E. 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 any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

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

Item No.	Description	Unit	Estimated Quantity	Unit Price	Total Price
1	Mobilization and Demobilization	LS	1		
2	Maintenance of Traffic	LS	1		
3	Construction Engineering	LS	1		
4	Erosion and Sediment Control	LS	1		
5	Surface Restoration	LS	1		
6	1-1/4-inch Low Pressure Sewer DR 11 Directionally Drilled	LF	10,830		
7	2-inch Low Pressure Sewer DR 11 Directionally Drilled	LF	14,580		
8	3-inch Low Pressure Sewer DR 11 Directionally Drilled	LF	6,710		
9	4-inch Low Pressure Sewer DR 11 Directionally Drilled	LF	3,420		
10	8-inch Steel Casing By Jack and Bore	LF	80		
11	6-inch Casing Pipe, HDPE DR 11, Trenchless	LF	208		
12	8-inch Casing Pipe, HDPE DR 11, Trenchless	LF	76		
13	Force Main Lateral Service Connections	EA	212		
14	Gravity Lateral Service Connections	EA	212		
15	Terminal Flushing and Flushing Connections	EA	28		
16	1.25-inch Cleanout	EA	35		
17	1.5-inch Bilateral Isolation Valve	EA	7		
18	2-inch Bilateral Isolation Valve	EA	9		
19	3-inch Bilateral Isolation Valve	EA	1		
20	4-inch Bilateral Isolation Valve	EA	2		
21	2-inch Air Release Valve Station	EA	11		
22	Sentry Protect Simplex Package Panel	EA	212		
23	Electrical Setup for Grinder Pump Station	EA	212		
24	Grinder Pump Station	EA	212		
25	Curb Stop Kit, Stainless Steel, 1-1/4" Com. Fittings DR 11 (IPS), Field Assembly	EA	212		

Item No.	Description	Unit	Estimated Quantity	Unit Price	Total Price
26	Curb Box Assembly 42-66", Arch Style	EA	212		

Total Base Bid Price \$ _____

BID ALTERNATE

Item No.	Description	Unit	Estimated Quantity	Unit Add or Deduct	Total Add or Deduct (Write-In)
1	Upgrade to Sentry Advisor Package Panel instead of Sentry Protect Simplex Package Panel for Grinder Pump Station Control Panels	EA	212		

Total Base Bid Price – Bid Alternate \$ _____

Proposed increase or decrease in price for the Bid Alternates listed above will be considered in determination of the lowest responsive and responsible bid.

The undersigned understands that after a contract is awarded, the Owner may select items of the Alternate Bids listed above. If awarded the contract, the Bidder agrees to furnish and install any Owner selected Alternate items for the add or deduct indicated. The total base bid will then be adjusted accordingly. The add or deduct amounts listed above are "installed" prices and take into consideration and include any cost of the design or construction changes that may be required as a result of selecting the Alternate.

Alternate Contract Item prices are subject to acceptance by the Owner, and rejection of one or more Alternate Contract Item prices will not invalidate acceptance of this Bid.

ARTICLE 6 – TIME OF COMPLETION

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

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

- A. Required Bid security;
- B. List of Proposed Subcontractors;
- C. List of Proposed Suppliers;
- D. List of Project References;
- E. Bidder's License No.: demonstrating evidence of authority to do business in the state of Indiana.
- F. Required Bidder Qualification Statement (Form 96) with supporting data;
- G. Wage/Fringe Benefit Certification (Exhibit C);
- H. GPR Bid Breakdown (Exhibit E);
- I. American Iron and Steel Certification (Exhibit F);
- J. Form OEE-1 (Exhibit G);
- K. Form OEE-2 (Exhibit G);
- L. Good Faith Efforts Worksheet (Exhibit G);
- M. E-Verify Affidavit

ARTICLE 8 – DEFINED TERMS

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

ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By:
[Signature] _____

[Printed name] _____
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

Bidder's License No.: _____
(where applicable)

(NO TEXT FOR THIS PAGE)

BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

Town of Wheatland
P.O. Box 219
Wheatland, Indiana 47597

BID

Bid Due Date: September 29, 2023

Description (*Project Name— Include Location*): Wheatland Wastewater System Improvements Division II
– Low Pressure Sewer System – Wheatland, Indiana

BOND

Bond Number:

Date:

Penal sum _____ \$ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

Bidder's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Addresses are to be used for giving any required notice.

Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and

assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation shall be null and void if:

3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or

3.2 All Bids are rejected by Owner, or

3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall 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 Registered or Certified Mail, return receipt requested, postage pre-paid, and shall 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 shall 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 shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

SECTION 00 45 13 – E-VERIFY AFFIDAVIT

LEGAL EMPLOYMENT DECLARATION

The State of Indiana, in IC §22-5-1.7, requires all state agencies and political subdivisions to seek verification from their contractors that the contractor’s employees are legally eligible to work in the United States.

This Declaration serves as notice that all Contractors doing business with the West Central Conservancy District must, as a term of their contract:

1. Enroll in and verify the work eligibility status of newly hired employees of the contractor through the United States government’s E-Verify program (but is not required to do so if the E-Verify program no longer exists); and
2. Verify, by signature below, that the Contractor does not knowingly employ unauthorized aliens.

I, _____, a duly authorized agent of _____(name of Company), declare under penalties of perjury that _____(name of Company) has verified the work eligibility status of its employees and it does not employ unauthorized aliens to the best of its knowledge and belief.

(Name of Company)

By: _____
(Authorized Representative of Company)

PLEASE SEE <https://e-verify.uscis.gov/enroll/StartPage.aspx?JS=YES> FOR INSTRUCTIONS AND ELECTRONIC REGISTRATION FOR E-VERIFY.

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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. Governmental Unit (Owner): Town of Wheatland

2. County : Knox

3. Bidder (Firm): _____

Address: _____

City/State/ZIPcode: _____

4. Telephone Number: _____

5. Agent of Bidder (if applicable): _____

Pursuant to notices given, the undersigned offers to furnish labor and/or material necessary to complete the public works project of _____

(Governmental Unit) in accordance with plans and specifications prepared by RQAW Corporation

_____ 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 _____, _____, subject to the following conditions: _____

Contracting Authority Members:

PART II (For projects of \$170,000 or more – IC 36-1-12-4)

Governmental Unit: _____

Bidder (Firm) _____

Date (month, day, year): _____

These statements to be submitted under oath by each bidder with and as a part of his bid. Attach additional pages for each section as needed.

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

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

3. Have you ever failed to complete any work awarded to you? _____ If so, where and why?

4. List references from private firms for which you have performed work.

SECTION II PLAN AND EQUIPMENT QUESTIONNAIRE

1. Explain your plan or layout for performing proposed work. *(Examples could include a narrative of when you could begin work, complete the project, number of workers, etc. and any other information which you believe would enable the governmental unit to consider your bid.)*

2. Please list the names and addresses of all subcontractors *(i.e. persons or firms outside your own firm who have performed part of the work)* that you have used on public works projects during the past five (5) years along with a brief description of the work done by each subcontractor.

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 _____, _____

(Name of Organization)

By _____

(Title of Person Signing)

ACKNOWLEDGEMENT

STATE OF _____)
) ss
COUNTY OF _____)

Before me, a Notary Public, personally appeared the above-named _____ and swore that the statements contained in the foregoing document are true and correct.

Subscribed and sworn to before me this _____ day of _____, _____.

Notary Public

My Commission Expires:_____

County of Residence:_____

BID OF

(Contractor)

(Address)

**FOR
PUBLIC WORKS PROJECTS
OF**

Filed _____

Action taken _____

NOTICE OF AWARD

Date of Issuance:

Owner: Town of Wheatland, IN

Owner's Contract No.: N/A

Engineer: RQAW Corporation

Engineer's Project No.: 21-400-194-1

Project: Wheatland Wastewater System
Improvements Division II – Low Pressure Sewer
System

Contract Name:

Bidder:

Bidder's Address:

TO BIDDER:

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

_____ .
[describe Work, alternates, or sections of Work awarded]

The Contract Price of the awarded Contract is: \$ _____ *[note if subject to unit prices, or cost-plus]*

[] unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically. *[revise if multiple copies accompany the Notice of Award]*

a set of the Drawings will be delivered separately from the other Contract Documents.

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

1. Deliver to Owner [_____] counterparts of the Agreement, fully executed by Provider.
2. Deliver with the executed Agreement(s) the Contract security *[e.g., performance and payment bonds]* and insurance documentation as specified in the Request for Qualifications and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

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

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

Owner: Town of Wheatland, IN

By: Erika Goble

Title: Deputy Clerk

Copy: Engineer

(NO TEXT FOR THIS PAGE)

**AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT**

THIS AGREEMENT is by and between Town of Wheatland, IN (“Owner”) and

 (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

- 1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:
- 1.02 The project includes the installation of a new low pressure sewer system for the Town of Wheatland, IN. This system would eliminate the existing failing septic systems throughout town. The project will include more than 24,000 LFT of low-pressure sewer pipe and approximately 212 grinder pump stations, which will serve a population of roughly 450.

ARTICLE 2 – THE PROJECT

- 2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **Wheatland Wastewater System Improvements Division II – Low Pressure Sewer System.**

ARTICLE 3 – ENGINEER

- 3.01 The part of the Project that pertains to the Work has been designed by RQAW Corporation.
- 3.02 The Owner has retained RQAW Corporation (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

- 4.01 *Time of the Essence*
 - A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.
- 4.02 *Contract Times: Dates*
 - A. The Work will be substantially completed within **540 calendar days** after the date when the Contract Times commence to run as provided in paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with paragraph 15.06 of the General Conditions within **600 calendar days** after the date when the Contract Times commence to run.

- B. It is expressly understood and agreed, by and between the Contractor and Owner that the Contract Time for completion of the work described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the Work and excludes the time for unavoidable delays which were beyond the control and without the fault of the Contractor.

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 times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
1. Substantial Completion: Contractor shall pay Owner \$1,500.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
 2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$750.00 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 Substantial Completion and Final Completion are not additive and will not be imposed concurrently.

4.04 *Special Damages*

- A. In addition to the amount provided for liquidated damages, 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.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract, a amount of: _____ (\$ _____).

The above amount is based on the unit price bid determined by the Contractor. Final adjustments of quantities may affect this price.

ARTICLE 6 – PAYMENT PROCEDURES**6.01 Submittal and Processing of Payments**

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

6.02 Progress Payments; Retainage

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment after the **1st** or **3rd** Tuesday of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner 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. 10 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage.
2. At Contractor's option, the Contractor may set-up an escrow account and enter into a separate escrow agreement with the Owner and an escrow agent. Anytime retainage is withheld, it shall be placed into the agreed upon escrow account. Set-up escrow account such that once retainage is withheld, it can only be released once written consent is provided by both the Owner and Contractor.

- B. Upon Substantial Completion, Owner may pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less 200 percent of Engineer's estimate of the value of Work to be completed or corrected attached to the certificate of Substantial Completion and such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions.

6.03 *Final Payment*

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

ARTICLE 7 – CONTRACTOR'S REPRESENTATIONS

7.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
- B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. 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 Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.
- F. Based on the information and observations referred to in the preceding paragraphs, 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.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. 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.

ARTICLE 8 – CONTRACT DOCUMENTS

8.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement, identified as Section 00 52 00.
 - 2. Addenda (numbers █ to █, inclusive).
 - 3. Notice of Award, identified as Section 00 51 00.
 - 4. Notice to Proceed, identified as Section 00 55 00.
 - 5. Performance bond, identified as Section 00 61 13.13.
 - 6. Payment bond, identified as Section 00 61 13.16.
 - 7. Maintenance bond, identified as Section 00 61 19.
 - 8. General Conditions, identified as Section 00 72 00.
 - 9. Supplementary Conditions, identified as Section 00 73 00.
 - 10. Specifications bearing the title Wheatland Wastewater System Improvements Division II – Low Pressure Sewer System as listed in the table of contents of the Project Manual.
 - 11. Drawings (not attached but incorporated by reference) bearing the title Wheatland Wastewater System Improvements Division II – Low Pressure Sewer System
 - 12. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages █ to █, inclusive).
 - b. Documentation submitted by Contractor prior to Notice of Award.
 - 13. Governing Order of Contract Documents – In the event that any provision in any of the above component parts of this Agreement conflicts with any provision in any other of the component parts, the provision in the component part first enumerated above shall govern over any other component part which follows it numerically except as may be otherwise specifically stated.
 - 14. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Work Change Directives.
 - b. Change Orders.

- c. Field Orders.
- B. The documents listed in Paragraph 8.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 8.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 9 – MISCELLANEOUS

9.01 *Terms*

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

9.02 *Assignment of Contract*

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

9.03 *Successors and Assigns*

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

9.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

9.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 9.05:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of

Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

9.06 *Other Provisions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or “track changes” (redline/strikeout), or in the Supplementary Conditions.

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

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

OWNER:

CONTRACTOR:

Town of Wheatland, IN

By: _____

By: _____

Title: Town Council President

Title: _____

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

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

Town of Wheatland

P.O. Box 219

Wheatland, IN 47597

License No.: _____
(where applicable)

NOTICE TO PROCEED

Owner: Town of Wheatland	Owner's Contract No.: N/A
Contractor:	Contractor's Project No.:
Engineer: RQAW Corporation	Engineer's Project No.: 21-400-194-1
Project: Wheatland Wastewater System Improvements Division II – Low Pressure Sewer System	Contract Name: Wheatland Wastewater System Improvements Division II – Low Pressure Sewer System
	Effective Date of Contract:

TO PROVIDER:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [_____, 2023]. *[see Paragraph 4.01 of the General Conditions]*

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, the date of Substantial Completion is 540 days from notice to proceed, and the date of readiness for final payment is 600 days from notice to proceed.

Before starting any Work at the Site, Contractor must comply with the following:
Comply with all requirements as stated in the Contract Documents.

Owner: Town of Wheatland, Indiana

By: Brett Dawson
Title: Town Council President
Date Issued:

Copy: Engineer

(NO TEXT FOR THIS PAGE)

PERFORMANCE BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

Town of Wheatland
P.O. Box 219
Wheatland, Indiana 47597

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):*

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: None See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal *(seal)*

Surety's Name and Corporate Seal *(seal)*

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

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 shall 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 shall 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 shall 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 shall 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 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence,

to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

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

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

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall 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 shall not be reduced or set off on account of any such unrelated obligations. No right of action shall 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 may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall 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 shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall 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 shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall 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 shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

(NO TEXT FOR THIS PAGE)

PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

Town of Wheatland
P.O. Box 219
Wheatland, Indiana 47597

CONTRACT

Effective Date of Agreement:
Amount:
Description (*Name and Location*):

BOND

Bond Number:
Date (*Not earlier than Effective Date of Agreement*):
Amount:
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Provide execution by additional parties, such as joint venturers, if necessary.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
 - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
 - 4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2 Claimants who do not have a direct contract with Contractor:
 1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
 2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. Reserved.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, 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 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 shall be applicable.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions

15.1 Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms “labor, materials or equipment” that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and 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.

15.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address, and Telephone)*

Surety Agency or Broker:

Owner’s Representative *(Engineer or other)*:

(NO TEXT FOR THIS PAGE)

MAINTENANCE BOND

Bond No. _____

KNOW ALL PEOPLE BY THESE PRESENTS:

That we, _____
(hereinafter called CONTRACTOR), and _____, a
corporation organized under the laws of the State of _____ and
authorized to do a surety business in the State of Indiana, (hereinafter called Surety), are held and firmly bound
unto the Town of Wheatland, Indiana (hereinafter called the OWNER) in the sum of (10% of Contract Price),
lawful money of the United States of America, for the payment of which sum, well and truly to be made, we
bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these
presents.

WHEREAS, said CONTRACTOR has performed improvements, which have been or are about to be
completed and accepted by the OWNER for the project known as:

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS DIVISION
II –LOW PRESSURE SEWER SYSTEM

AND WHEREAS, it is required that the CONTRACTOR should guarantee the project from defects
caused by faulty or defective materials, workmanship, or design for a period of one year from and after the date
of acceptance of the completed project by the OWNER.

NOW, THEREFORE, if the CONTRACTOR shall for a period of one year from and after the date of
acceptance of the completed project by the OWNER replace any and all defects arising in said work whether
resulting from faulty or defective materials, workmanship, or design, then the above obligation shall be null and
void; otherwise the obligation shall remain in full force and effect for one year from the date of acceptance of
the completed project by the OWNER.

The OWNER shall notify the CONTRACTOR in writing of any defects for which the CONTRACTOR
is responsible and shall specify in said notice a reasonable time within which the CONTRACTOR shall have to
correct said defects. If the CONTRACTOR fails to correct said defects within the time specified in said notice,
the OWNER, in its discretion, may permit the Surety to correct said defects. If the OWNER allows the Surety to
correct said defects, the Surety shall have sixty (60) days thereafter within which to take such action as it deems

necessary to insure performance of the CONTRACTOR's obligation.

If such defects are not corrected after the time period specified in the notice or after the expiration of the sixty (60) day time period, whichever is applicable, the OWNER shall have the right to correct the defects, and the CONTRACTOR and Surety, jointly and severally, shall pay all costs and expenses incurred by the OWNER in correcting the defects, including, but not limited to, the ENGINEER, legal and other costs, together with any damages either direct or consequential, which the OWNER sustains, or may sustain, on account of the CONTRACTOR's failure to correct the defects. In addition, the OWNER shall have the right to contract for the correction of said defects and, upon acceptance of a bid in accordance with the OWNER's normal bidding process, the CONTRACTOR and Surety shall become immediately liable for the amount of the bid. In the event that the OWNER commences legal proceedings for the collection thereof, interest shall accrue on said amount at the rate of six (6) percent per annum, beginning at the commencement of said legal proceedings.

If the OWNER commences suit for collection of any sums due hereunder, the CONTRACTOR and Surety, jointly and severally, agree to pay all costs and expenses incurred by the OWNER, including, but not limited to, attorney's fees.

IN WITNESS WHEREOF, the parties have caused this instrument to be signed and sealed by their respective authorized officers this day of _____ 20__.

CONTRACTOR:

SURETY:

By: _____

By: _____

Title: _____

Title: _____

Address: _____

Address: _____

WITNESS AS TO CONTRACTOR

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by



Endorsed by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, 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 form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *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, or both; 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, or both; 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; or (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. 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), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5101 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree 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 the 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. *Engineer*—The individual or entity named as such in the Agreement.
21. *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.
22. *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. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *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.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *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.
28. *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.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
30. *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.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *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.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *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.
36. *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.

37. *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 furnished by Owner which are designated for the use of Contractor.
38. *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.
39. *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.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *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.

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

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. 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. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), 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 executed 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 specifically 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 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility 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.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items 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 items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall 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.

3.02 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean 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, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the 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 Documents 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 Documents 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 shall 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 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 thereunder.
- 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 give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, 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 shall preclude 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 thirtieth 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 sixtieth day after the day of Bid opening or the thirtieth 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 shall 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 shall 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 shall 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 the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- 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. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall 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 utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 4. acts of war or terrorism.
- D. 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.
- E. Paragraph 8.03 governs 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.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times 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.

- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

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

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- 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; 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 7.12, 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 at law; 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 shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site 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 known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); 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 upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. 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; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

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 either:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
 2. is of such a nature as to require a change in the Drawings or Specifications; or
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 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 the necessity of Owner's obtaining 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 above; 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. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, 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 conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
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; or
 - 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 as 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, or both, then any such adjustment shall 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, or both, 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.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. 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 in the Contract Documents, or was not shown or indicated 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), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; 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 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. *Possible Price and Times Adjustments:*
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, 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. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - 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;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. 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, or both, then any such adjustment shall 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, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings*: The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. 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 Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. 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; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, 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.
- 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 or 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 shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate 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 all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, 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 shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. 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.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

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. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

maintaining the policies, coverages, and endorsements 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 and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements 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 and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. 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, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of 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.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect 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 shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).
- B. *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:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall 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, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. 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); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. 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.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
 - 1. include at least the specific coverages provided in this Article.
 - 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 - 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 - 4. remain in effect at least until final payment (and longer if expressly required in this Article) 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 Documents.
 - 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. 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.

6.05 *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 full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 - 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 - 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. 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 may be provided through other insurance policies acceptable to Owner and Contractor.
 - 3. 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.
 - 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

5. 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).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed 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.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- 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 notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* 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 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. 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 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 Subcontractors, all individuals or entities identified in the Supplementary Conditions as 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. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial 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.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work 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 any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 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 6.05 shall 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, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 Supervision and Superintendence

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

7.02 Labor; Working Hours

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, 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.

7.03 Services, Materials, and Equipment

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and

guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 "Or Equals"

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the 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 material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- 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 shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

- A. Unless the specification or description of an item of material or equipment 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 material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.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 material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall 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 that specified, and
 - 3) be suited to the same use as that 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 that specified, and

- 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
 - C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
 - D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
 - E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
 - F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities 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, Supplier, or other individual or entity 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 five days.

- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. 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, Suppliers, or other individuals or entities 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, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, 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, Supplier, or other individual or entity, whether initially or as a replacement, shall 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 fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

- O. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

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

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of 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.

7.09 *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.

7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work 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 shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give 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 notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *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.

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when 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.
 - C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
 - D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
 - E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor 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).
 - F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
 - G. Contractor's duties and responsibilities for safety and protection shall 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.

7.13 *Safety Representative*

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

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or

exchanged between or among 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 threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to

provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

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.D.
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. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
 1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction 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 shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 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.
 5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 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, shall 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, Sample, or other submittal shall 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.D.4.

E. *Resubmittal Procedures:*

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

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 and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.

- D. 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 shall 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 and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop

Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

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 utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. 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.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, 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.

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 at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner for whom the Owner is responsible 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, or both. 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 shall 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. When applicable, any such equitable adjustment in Contract Price shall 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 is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- 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. 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 to 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.
- C. 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 to Contractor.

- D. 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 shall 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 Documents (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 10.08. 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 *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 Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *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.

10.07 *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.

10.08 *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, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 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 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *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 (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not 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, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 2. *Work Change Directives:* 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 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 90 days after issuance of the Work Change Directive.

3. *Field Orders*: 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. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *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. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes 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 shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate 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.

11.03 *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.

11.04 *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 shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall 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); or
 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 11.04.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 11.04.C).

- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.04.C.2.a and 11.04.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.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 five 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 shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall 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 will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *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 shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. 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. The supporting data shall 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. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall 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.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *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 that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 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 11.02, (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 in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *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 shall be submitted 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; and
 - 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.
- 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 shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, 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 shall 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 shall 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 shall 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 shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall 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 shall 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 shall be incorporated in a Change Order 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. 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 shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable

thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes

other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as 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 shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 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. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee:* When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

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 on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

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, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 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 will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

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 shall 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 shall 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 shall 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 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 shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, 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 shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

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 rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 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 on account of 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. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 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 on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of 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 that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated 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;
 - l. there are other items entitling 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 shall 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 shall be treated as an amount due as determined by Paragraph 15.01.C.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 seven 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 shall 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 seven 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 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 6.05 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 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall 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 disputes that Contractor believes are unsettled; 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 Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall 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. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. 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. *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.

D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- 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 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 terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then 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 other adjacent areas;
 - 2. correct such defective Work;
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not 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, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall 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) ten 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) 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 seven 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 shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; 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 on account of loss of anticipated overhead, profits, or revenue, 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 seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 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, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph 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; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising 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; or
 - 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 Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

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 shall not constitute a waiver of that provision, nor shall 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 or completion of the Contract or termination 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 *Headings*

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

SECTION 00 73 00 - SUPPLEMENTARY CONDITIONS

GENERAL

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

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

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC-1.01.A. Defined Terms

Add new paragraph 1.01.A.49 and 1.01.A.50 immediately after paragraph 1.01.A.48 of the General Conditions which shall read as follows:

49. "Additional Insureds", except where otherwise expressly defined, shall mean:

Town of Wheatland
RQAW Corporation
Atlas Technical Consultants, LLC

ARTICLE 2 – PRELIMINARY MATTERS

SC-2.02 Copies of Documents

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

Owner shall furnish to Contractor two (2) copies of the Contract Documents (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF).

ARTICLE 3 – DOCUMENT: INTENT, REQUIREMENTS, REUSE

SC-3.01 Intent

SC-3.01.E. Add new Paragraph 3.01.E.1 immediately after Paragraph 3.01.E:

1. Engineer will issue, within five working days of receipt, such written clarifications or interpretations of the requirement of the Contract Documents (in a form as determined by Engineer) as Engineer may determine necessary, which shall be consistent with the intent of and reasonably inferable from Contract Documents. If Engineer determines, based upon the nature of the requested clarification or interpretation, that

the response cannot be furnished in five working days, Engineer will advise the Contractor giving a schedule for furnishing the information.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

SC-4.01 Commencement of Contract Times; Notice to Proceed

SC-4.01.A Delete Paragraph 4.01.A. in its entirety and insert the following new paragraph in its place:

- A. The Contract Times will commence on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement.

SC-4.04 Progress Schedule

SC-4.04.C And new Paragraph 4.04.C. immediately after Paragraph 4.04.B.:

- C. Provide an updated Progress Schedule with each Application for Payment. Engineer may deny Application for Payment if an updated Progress Schedule is not received.

SC-4.05 Delay's in Contractor's Progress

SC-4.05.A Delete Paragraph 4.05.A. in its entirety and insert the following new paragraph in its place:

- A. No claim for payment, compensation or adjustment of any kind (other than the extensions of time provided for herein) shall be made or asserted against the Owner or Engineer by the Provider for damages caused by hindrances or delays from any cause, whether such hindrances or delays be avoidable or unavoidable, and the Provider shall make no claim for damages by reason of any such hindrances or delays, and will accept in full satisfaction of such hindrances or delays an extension of time to complete the performance of the Work as specified.

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

SC-5.03 Subsurface and Physical Conditions

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

- C. The following reports of explorations and tests of subsurface conditions at or adjacent to the Site are known to Owner:
 - 1. Report dated prepared by Atlas Technical Consultants, LLC., Indianapolis, IN
The report listed above is appended to the Contract Documents, but is not considered part of the Contract Documents. The Technical Data contained therein upon which the Contractor is entitled to rely as provided in Paragraph 5.03.B of the General Conditions and as identified and established above are incorporated therein by reference.

ARTICLE 6 – BONDS AND INSURANCE

SC-6.01 Performance, Payment and Other Bonds

Add new paragraph 6.01.A.1. immediately after paragraph 6.01.A of the General Conditions which shall read as follows:

1. Contractor shall submit the Maintenance Bond within ten (10) days of acceptance of the project by the Owner, for an amount equal to ten percent (10%) of the final contract amount, guaranteeing for a period of one (1) year after the date of acceptance of the project by the Owner.

SC-6.02 Insurance—General Provisions

Add new paragraph 6.02.A.1. immediately after paragraph 6.02.A of the General Conditions which shall read as follows:

1. Contractor may obtain worker’s compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the project is located, (b) is certified or authorized as a worker’s compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker’s compensation insurance for similar projects by the state within the last 12 months.

SC-6.03 Contractor’s Insurance

Add new paragraph 6.03.J immediately after paragraph 6.03.K of the General Conditions which shall read as follows:

- K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers’ Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

State:	<u>Statutory</u>
Federal, if applicable (e.g., Longshoreman’s):	<u>Statutory</u>
Employer’s Liability:	<u>\$1,000,000</u>
Foreign voluntary worker compensation	<u>Statutory</u>
2. Contractor’s Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions which shall include complete operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Provider:

General Aggregate	\$ <u>3,000,000</u>
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Products - Completed Operations Aggregate	\$ <u>2,000,000</u>
Each Occurrence (Bodily Injury and Property Damage)	\$ <u>1,000,000</u>
3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:	
Bodily Injury:	
Each person	\$ <u>500,000</u>
Each accident	\$ <u>1,000,000</u>
Property Damage:	
Each accident	\$ <u>1,000,000</u>
Combined Single Limit of	\$ <u>1,000,000</u>
4. Excess or Umbrella Liability:	
Per Occurrence	\$ <u>1,000,000</u>
General Aggregate	\$ <u>3,000,000</u>
5. Contractor's Professional Liability:	
Each Claim	\$ <u>1,000,000</u>
Annual Aggregate	\$ <u>3,000,000</u>

SC-6.04 Owner's Liability Insurance

Delete Paragraphs 6.04.A and 6.04.B in their entirety and insert the following:

- A. Contractor shall purchase and maintain until the date of final acceptance, Owner's and Contractor's Protective Liability Insurance to protect Owner, including its employees, officers, and agents against claims which may arise from the operations of the Contractor, or his subcontractors. The coverage shall be for not less than the following amounts or greater where required by law or regulation:

Combination of Primary and Umbrella Coverage \$ 5,000,000

This insurance shall also cover the Engineer, RQAW Corporation, RQAW Corporation's subconsultants or such other engineer or engineers as may act under the Contract, against similar claims.

- B. Not Used.

SC-6.05 Property Insurance

Delete Paragraphs 6.05.A.13 and 6.05.B in their entirety and insert the following:

13. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.

B. Not used.

ARTICLE 7 – CONTRACTOR’S RESPONSIBILITIES

SC-7.01 Supervision and Superintendence

Add new paragraphs 7.01.C and 7.01.D immediately after paragraph 7.01.B of the General Conditions which shall read as follows:

- C. The Superintendent will be Contractor’s representative at the Site and shall have authority to act on behalf of the Contractor. All communications given to or received from the Superintendent shall be binding on Contractor.
- D. Prior to the Acceptance of Contractor’s Bid, the Owner will require Contractor to submit the identity and related experience of the Contractor’s proposed Superintendent and Project Management Personnel to better evaluate the Contractor’s past performance. Submitted information shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such individual. If Owner or Engineer, after due investigation, has objection to any proposed Personnel, Owner may, before the Notice of Award is given, request Contractor to submit a substitute, without an increase in the Bid Price. Any Personnel so listed and against which Owner or Engineer makes no written objection prior to the giving of Notice of Award will be deemed acceptable to Owner and Engineer. The Contractor’s proposed replacement of the Superintendent or Project Management Personnel shall also be subject to these requirements.

SC-7.02 Labor; Working Hours

SC-7.02.B. Add the following new subparagraphs immediately after Paragraph 7.02.B:

1. Work Hours: Perform work between 7:00 a.m. and 6:00 p.m. Emergency work may be performed anytime without the Owner’s written consent required in paragraph 7.02.B.
2. Work After Hours: Night work may be established by Contractor as regular procedure with written consent of Owner. Such consent, however, may be revoked at any time by Owner if Contractor fails to maintain adequate equipment and supervision for proper prosecution and control of night work.
3. Owner’s legal holidays are New Years Day, Martin Luther King Day, Good Friday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran’s Day, Thanksgiving Day, Day after Thanksgiving, Washington’s Birthday, and Christmas Day.

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

Contractor is responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer’s services (including those of the Resident Project Representative, if any), Owner’s representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if

the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

SC-7.08 Permits

SC 7.08 Add a new paragraph immediately after Paragraph 7.08.A:

B. Prior to construction beginning, Owner will have obtained the following permits:

1. Indiana Department of Environmental Management - Application for Construction Permit for Wastewater Sewer Extension.
2. Indiana Department of Environmental Management - Construction/Land Disturbance Storm Water (Rule 5) Permit.
3. Indiana Department of Transportation (INDOT) – Right-of-way Permit(s).
4. CSX Railroad Permit(s).
5. Indiana Department of Environmental Management – Application for Construction Permit for Wastewater Treatment Plant.

SC-7.09 Taxes

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

B. Owner is exempt from payment of sales and compensating use taxes (Indiana Gross Retail Tax) 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. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

SC-7.10 Laws and Regulations

SC 7.10 Add a new paragraph immediately after Paragraph 7.10.C:

D. Financing of the project will be through the State Revolving Fund administered by the Indiana Finance Authority.

SC-7.12 Safety and Protection

SC 7.12 Add the following new paragraphs 4., 5., 6., and 7. immediately after Paragraph 7.12.A.3.:

4. No Duty. The duty of the Owner or Engineer to observe Contractor's performance does not include any review of the adequacy of Contractor's safety measures in, on, or near the Work site or sites. Engineer has not been retained or compensated to provide design and construction review services relating to Contractor's safety precautions required for Contractor to perform the Work.

5. No Liability. Neither the Owner, nor an official or employee of the Owner, nor the Engineer, or any authorized assistant or agent of any of them, shall be responsible for safety precautions and programs in connection with the Work or any liability arising therefrom.
6. Protection of Operations. The Contractor shall take all necessary precautions so as to cause no unauthorized interruption in any essential part of the distribution system operations. Shutdowns for construction Work shall be scheduled in advance (minimum 14 days notice), carefully planned, and shall be carried out in close cooperation with the Owner.
7. Special Requirements for Structural Design. All structures to be provided by the Contractor, that require structural design shall be designed and constructed under the observation of a structural engineer, registered in the State of Indiana, acting for and retained by the Contractor. Drawings and calculations for such structures shall be prepared and sealed by the structural engineer and submitted to the Engineer and Owner for record. A clear outline of the proposed construction procedure shall be shown on the drawings. A statement in writing by the structural engineer attesting that said engineer has visited the Work site or sites, that the design does satisfy the conditions as actually encountered and that the actual construction conforms to the drawings and calculations, as submitted, must be submitted to the Engineer before the Work related to such structures will be considered complete.

All temporary structures, including sheeting and bracing for excavations, that affect the safety of the public, workmen, inspectors, or Owner's or Engineer's personnel shall be regarded as structures that require structural design.

SC-7.16 Shop Drawings, Samples, and Other Submittals

SC 7.16 Delete paragraph 7.16.D.8. in its entirety and insert the following:

8. Furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than two submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawing, sample, or other item requiring approval, and Provider shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Provider to secure reimbursement for such charges.

SC 7.16 Add the following new paragraph 9. immediately after Paragraph 7.16.D.8.:

9. Engineer, generally, will process shop drawings and return them to the Contractor in not more than 10 working days from day of receipt. If the nature of the shop drawings is such that the review cannot be completed in 10 working days, Engineer will advise the Contractor giving a schedule for performing the review.

ARTICLE 8 – OTHER WORK AT THE SITE

SC-8.02 Coordination

SC-8.02 Add the following new Paragraph 8.02.C. immediately after Paragraph 8.02.B.:

- C. Should Contractor cause damage to the Work or property of any separate contractor at the site, or should any claim arising out of Contractor's performance of the Work at the site be made by any separate contractor against Contractor, Owner, Engineer, Engineer's Consultants, or any other person, Contractor shall promptly attempt to settle with such other contractor by agreement, or to otherwise resolve the dispute by arbitration or at law. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold Owner, Engineer, and Engineer's Consultants harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any separate contractor against Owner, Engineer, or Engineer's Consultants to the extent based on a claim arising out of Contractor's performance of the Work. Should a separate contractor cause damage to the Work or property of Contractor or should the performance of Work by any separate contractor at the site give rise to any other claim, Contractor shall not institute any action, legal, or equitable, against Owner, Engineer, or Engineer's Consultants or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from Owner, Engineer, or Engineer's Consultants on account of any such damage or claim. If Contractor is delayed at any time in performing or furnishing Work by any act or neglect of a separate contractor and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a claim for an extension of times in accordance with Article 11. An extension of the Contract Times shall be Contractor's exclusive remedy with respect to Owner, Engineer, and Engineer's Consultants for any delay, disruption, interference, or hindrance caused by any separate contractor. This paragraph does not prevent recovery from Owner, Engineer, or Engineer's Consultants for activities that are their respective responsibilities.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

SC-10.03 Project Representative

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

- B. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.
 - 1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall

generally communicate with Owner only with the knowledge of and under the direction of Engineer.

2. Liaison:
 - a. The RPR will generally serve as the Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
3. Review of Work and Rejection of Defective Work:
 - a. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
4. Inspections, Tests, and System Start-ups:
 - a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.
 - b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.
5. Records:
 - a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
 - b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.

- c. Maintain records for use in preparing Project documentation.
6. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.
7. Completion:
 - a. Participate in Engineer’s visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.
 - b. Participate in Engineer’s final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.
 - c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.
- C. The RPR shall 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 Contractor’s work.
 5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs regarding the activities or operations of Owner or Contractor.
 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
 7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
 8. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

SC-11.07 Execution of Change Orders

SC 11.07.C Add the following new paragraph immediately after Paragraph 11.07.C.:

- D. After execution of a Change Order, Contractor shall update the Project Schedule and/or Schedule of Values to reflect the agreed upon changes in Contract Price and/or Contract Time.

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

SC-14.02 Tests, Inspections, and Approvals

SC 14.02.B Delete Paragraph 14.02.B. in its entirety and insert the following in its place:

- B. Contractor shall employ and pay for the services of an independent testing laboratory to perform all inspections, test or approvals required by the Contract Documents except as otherwise specifically provided in the Contract Documents.

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

SC-15.01 Progress Payments:

SC 15.01.B Add the following new subparagraph to Paragraph 15.01.B.1.:

- a. Submit each application on a form approved by the Owner. Present required information in typewritten form or on electronic media printout.

SC 15.01.B Add the following new Paragraph 15.01.B.4. immediately after Paragraph 15.01.B.3.:

4. Stored Materials - Individual items with value of not less than \$10,000 are eligible for payment by Owner as stored materials. Contractor may request payment of stored materials as approved by the Owner, submit a separate schedule for Materials Stored showing line item, description, previous value received, value incorporated into the work, and present value. Payment for stored materials is not guaranteed.

SC 15.01.C Add the following new Paragraph 15.01.C.7. immediately after Paragraph 15.01.C.6.:

7. Keep all record drawings up to date. Engineer's review and recommendation for payment to the Owner is subject to the Contractor maintaining all record drawings are in alignment with the progress of the Work.

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

1. Thirty 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.

SC-15.03 Substantial Completion

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

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, shall be paid by the Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount

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owed, then Owner may impose a reasonable set-off against payments due under Article 15.

ARTICLE 18 – MISCELLANEOUS

SC-18.09 Wage Rates

SC-18.09 Add the following new paragraph immediately after Paragraph 18.08.

18.09 Wage Rates

- A. Wage rates for the Work shall be not less than the prescribed United States Department of Labor rates attached as Exhibit A to these Supplementary Conditions, as modified and in effect on the effective date of the Agreement. Contractor may obtain the wage rates from the following website:

<https://www.wdol.gov/dba.aspx>

2. Browse All Determinations by State
3. Click on Indiana
4. Select Knox County – Heavy or Highway

SC-18.10 Suspension and Debarment

SC-18.10 Add the following new paragraph immediately after Paragraph 18.09.

18.10 Suspension and Debarment

- A. SRF materials regarding the Suspension and Debarment provision applicable to this project are attached as Exhibit C to the Supplementary Conditions.

SC-18.11 Green Project Reserve

SC-18.11 Add the following new paragraph immediately after Paragraph 18.10.

18.11 Green Project Reserve

- A. SRF materials regarding the Green Project Reserve applicable to this project are attached as Exhibit D to the Supplementary Conditions.

SC-18.12 American Iron and Steel

SC-18.12 Add the following new paragraph immediately after Paragraph 18.11.

18.12 American Iron and Steel

- A. SRF materials regarding the American Iron and Steel provision applicable to this project are attached as Exhibit D to the Supplementary Conditions.

SC-18.13 Disadvantaged Business Enterprise

SC-18.13 Add the following new paragraph immediately after Paragraph 18.12.

18.13 Disadvantaged Business Enterprise

- A. Take all necessary affirmative steps to assure that minority and women’s business enterprises are used when possible. Affirmative steps shall include taking the following actions for all of these two (2) types of enterprises:
 - 1. Placing qualified enterprises on solicitation lists:
 - 2. Assuring that these enterprises are solicited whenever they are potential sources.
 - 3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by these enterprises.
 - 4. Establishing delivery schedules, where the requirement permits, which encourage participation by these enterprises.
 - 5. Using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.
 - 6. Requiring each subcontractor to take the affirmative steps 1. through 5. above.

Disadvantaged Business Enterprise forms and guidance are attached as Exhibit F to the Supplementary Conditions.

SC-18.14 Prohibition of Discrimination

SC-18.14 Add the following new paragraph immediately after Paragraph 18.13.

18.14 Prohibition of Discrimination

- B. The Contractor agrees:
 - 1. 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;
 - 2. That no contractor, subcontractor, or any person on his/her 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;
 - 3. That there may be deducted from the amount payable to the Contractor 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
 - 4. That this Contract may be cancelled or terminated by the Owner and all money due 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.

SC-18.15 Severability

SC-18.15 Add the following new paragraph immediately after Paragraph 18.14.

18.15 Severability

- A. If any portion of the Contract Documents is invalid or unenforceable pursuant to applicable law, such portion shall be void in the jurisdiction where it is invalid or unenforceable, and the remainder of the Contract Documents shall remain binding upon the parties hereto.

SC-18.16 Compliance with E-Verify Program

SC-18.16 Add the following new paragraph immediately after Paragraph 18.15.

18.16 Compliance with E-Verify Program

- A. Pursuant to IC 22-5-1.7, Contractor shall enroll in and verify the work eligibility status of all newly hired employees of Contractor through the E-Verify Program (“Program”). Contractor is not required to verify the work eligibility status of all newly hired employees through the Program if the Program no longer exists.
- B. Contractor and its subcontractors shall not knowingly employ or contract with an unauthorized alien or retain an employee or contract with a person that Contractor or its subcontractor subsequently learns is an unauthorized alien. If Contractor violates this Section 18.16, Owner shall require Contractor to remedy the violation not later than thirty (30) days after Owner notifies Contractor. If Contractor fails to remedy the violation within the thirty (30) day period, Owner shall terminate the Contract for breach of contract. If Owner terminates the Contract, Contractor shall, in addition to any other contractual remedies, be liable to Owner for actual damages. There is a rebuttable presumption that Contractor did not knowingly employ an unauthorized alien if Contractor verified the work eligibility status of the employee through the Program.
- C. If Contractor employs or contracts with an unauthorized alien but Owner determines that terminating the Contract would be detrimental to the public interest of public property, Owner may allow the Contract to remain in effect until Owner procures a new contractor.
- D. Contractor shall, prior to performing any work, require each subcontractor to certify to Contractor that the subcontractor does not knowingly employ or contract with an unauthorized alien and has enrolled in the Program. Contractor shall maintain on file a certification from each subcontractor throughout the duration of the Project. If Contractor determines that a subcontractor is in violation of this Paragraph 18.16, Contractor may terminate its contract with the subcontractor for such violation. Such termination may not be considered a breach of contract by Contractor or the subcontractor.
- E. With the Agreement, Contractor shall submit executed affidavits stating they will not knowingly employ illegal aliens.
- F. Contractor’s subcontractors shall, prior to performing any work, submit executed affidavits which state they will not knowingly employ illegal aliens.

SC-18.17 Engaging in Activities with Iran

SC-18.17 Add the following new paragraph immediately after Paragraph 18.16.

18.17 Engaging in Activities with Iran

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- A. Pursuant to IC 5-22-16.5, Contractor shall not engage in investment activities in the country of Iran.

(NO TEXT FOR THIS PAGE)

EXHIBIT A

HUD 4010

(NO TEXT FOR THIS PAGE)

A. APPLICABILITY

The Project or Program to which the construction work covered by this Contract pertains is being assisted by the United States of America, and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

(1) MINIMUM WAGES

- (i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment, computed at rates not less than those contained in the wage determination of the Secretary of Labor (which is attached hereto and made a part hereof), regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH1321)) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place, where it can be easily seen by the workers.

(ii) Additional Classifications.

- (A) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:
- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination;
 - (2) The classification is utilized in the area by the construction industry; and
 - (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- (B) If the contractor, the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division ("Administrator"), Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget ("OMB") under OMB control number 1235-0023.)
- (C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, or HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1235-0023.)

(D) The wage rate (including fringe benefits, where appropriate) determined pursuant to subparagraphs (1)(ii)(B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1235-0023.)

(2) **Withholding.** HUD or its designee shall, upon its own action or upon written request of an authorized representative of the U.S. Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The U.S. Department of Labor shall make such disbursements in the case of direct Davis-Bacon Act contracts.

(3) **Payrolls and basic records.**

(i) **Maintaining Payroll Records.** Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification(s), hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid.

Whenever the Secretary of Labor has found, under 29 CFR 5.5(a)(1)(iv), that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1235-0023 and 1215-0018)

(ii) **Certified Payroll Reports.**

(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead, the payrolls only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <https://www.dol.gov/agencies/whd/forms> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the U.S. Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1235-0008.)

- (B)** Each payroll submitted shall be accompanied by a “Statement of Compliance,” signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
- (1)** That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;
 - (2)** That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;
 - (3)** That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract; and
- (C)** The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance” required by subparagraph (a)(3)(ii)(b).
- (D)** The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph (a)(3)(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the U.S. Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency (where appropriate), to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman’s hourly rate) specified in the contractor’s or subcontractor’s registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice’s level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program.

If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- (ii) **Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed, unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- (iii) **Equal employment opportunity.** The utilization of apprentices, trainees, and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

- (5) **Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this Contract.
- (6) **Subcontracts.** The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs (1) through (11) in this paragraph (a) and such other clauses as HUD or its designee may, by appropriate instructions, require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.
- (7) **Contract termination; debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
- (8) **Compliance with Davis-Bacon and Related Act Requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this Contract.
- (9) **Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this Contract shall not be subject to the general disputes clause of this Contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.
- (10) **Certification of Eligibility.**
- (i) By entering into this Contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) Anyone who knowingly makes, presents, or submits a false, fictitious, or fraudulent statement, representation or certification is subject to criminal, civil and/or administrative sanctions, including fines, penalties, and imprisonment (e.g., 18 U.S.C. §§ 287, 1001, 1010, 1012; 31 U.S.C. §§ 3729, 3802).

(11) Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic, to whom the wage, salary, or other labor standards provisions of this Contract are applicable, shall be discharged or in any other manner discriminated against by the contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The provisions of this paragraph (b) are applicable where the amount of the prime contract exceeds **\$100,000**. As used in this paragraph, the terms “laborers” and “mechanics” include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work, which may require or involve the employment of laborers or mechanics, shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek, unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph B(1) of this paragraph, the contractor, and any subcontractor responsible therefor, shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph B(1) of this paragraph, **in the sum set by the U.S. Department of Labor at 29 CFR 5.5(b)(2)** for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in subparagraph B(1) of this paragraph. In accordance with the Federal Civil Penalties Inflation Adjustment Act of 1990 (28 U.S.C. § 2461 Note), the DOL adjusts this civil monetary penalty for inflation no later than January 15 each year.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall, upon its own action or upon written request of an authorized representative of the U.S. Department of Labor, withhold or cause to be withheld from any moneys payable on account of work performed by the contractor or subcontractor under any such contract, or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages, as provided in the clause set forth in subparagraph B(2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph B(1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs B(1) through (4) of this paragraph.

C. HEALTH AND SAFETY

The provisions of this paragraph (c) are applicable where the amount of the prime contract exceeds **\$100,000**.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his or her health and safety, as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The contractor shall comply with all regulations issued by the Secretary of Labor pursuant to 29 CFR Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96), 40 U.S.C. § 3701 et seq.

(3) The contractor shall include the provisions of this paragraph in every subcontract, so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

EXHIBIT B

WAGE RATES

(NO TEXT FOR THIS PAGE)

"General Decision Number: IN20230002 09/01/2023

Superseded General Decision Number: IN20220002

State: Indiana

Construction Type: Building

Counties: Adams, Allen, Bartholomew, Benton, Blackford, Boone, Carroll, Cass, Clinton, DeKalb, Delaware, Fountain, Fulton, Grant, Hamilton, Hancock, Hendricks, Howard, Huntington, Jay, Johnson, Madison, Marion, Miami, Monroe, Montgomery, Morgan, Noble, Shelby, Steuben, Tippecanoe, Tipton, Wabash, Warren, Wells, White and Whitley Counties in Indiana.

BUILDING CONSTRUCTION(does not include single family homes and apartments up to and including 4 stories)

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<p>. Executive Order 14026 generally applies to the contract.</p> <p>. The contractor must pay all covered workers at least \$16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.</p>
<p>If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<p>. Executive Order 13658 generally applies to the contract.</p> <p>. The contractor must pay all covered workers at least \$12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.</p>

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/06/2023
1	01/20/2023
2	02/03/2023
3	02/10/2023
4	02/24/2023
5	03/03/2023
6	03/17/2023
7	04/07/2023
8	05/26/2023
9	06/02/2023
10	06/09/2023
11	07/14/2023
12	08/11/2023
13	08/25/2023
14	09/01/2023

ASBE0018-004 06/01/2022

BARTHOLOMEW, BENTON, BOONE, CARROLL, CLINTON, DELAWARE, FOUNTAIN, HAMILTON, HANCOCK, HENDRICKS, HOWARD, JOHNSON, MADISON, MARION, MONROE, MONTGOMERY, MORGAN, SHELBY, TIPPECANOE, TIPTON, AND WARREN COUNTIES:

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (includes application of all insulating materials, protective coverings, coatings and finishings to all types of mechanical systems).....	\$ 34.90	21.58
HAZARDOUS MATERIAL HANDLER (includes preparation, wettings, stripping, removal, scrapping, vacuuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems).....	\$ 23.00	14.40

ASBE0041-002 07/01/2022

ADAMS, ALLEN, BLACKFORD, DE KALB, GRANT, HUNTINGTON, JAY, MIAMI, NOBLE, STEUBEN, WABASH, WELLS AND WHITLEY COUNTIES:

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (includes application of all insulating materials, protective coverings, coatings and		

finishings to all types of
mechanical systems).....\$ 31.45 22.38
HAZARDOUS MATERIAL HANDLER
(includes preparation,
wettings, stripping, removal,
scrapping, vaccuming, bagging
& disposing of all insulation
materials, whether they
contain asbestos or not, from
mechanical systems).....\$ 23.00 14.40

ASBE0075-003 06/01/2020

CASS, FULTON and WHITE COUNTIES

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (includes application of all insulating materials, protective coverings, coatings and finishings to all types of mechanical systems).....\$ 32.00	32.00	26.04
HAZARDOUS MATERIAL HANDLER (includes preparation, wetting, stripping, removal, scrapping, vaccuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems).....\$ 23.00	23.00	14.40

BOIL0374-002 01/01/2021

	Rates	Fringes
BOILERMAKER.....\$ 38.53	38.53	32.20

BRIN0003-001 06/01/2023

INDIANAPOLIS

BOONE, HANCOCK, HENDRICKS, JOHNSON, MARION, MONTGOMERY, MORGAN
and SHELBY COUNTIES

	Rates	Fringes
Bricklayer, Stone Mason, Pointer, Caulking.....\$ 36.24	36.24	17.39
TERRAZZO FINISHER.....\$ 23.38	23.38	13.15
TERRAZZO WORKER/SETTER.....\$ 36.38	36.38	17.24
Tile & Marble Finisher.....\$ 24.33	24.33	13.16
Tile, Marble Setter.....\$ 35.63	35.63	17.23

BRIN0004-004 06/01/2023

FORT WAYNE

ADAMS, ALLEN, DEKALB, HUNTINGTON, NOBLE, STEUBEN, WELLS AND
WHITLEY COUNTIES:

	Rates	Fringes
BRICKLAYER (STONE MASON, MARBLE MASONS, POINTER, CLEANER, AND CAULKER).....	\$ 34.41	21.42
Terrazzo Grinder Finisher.....	\$ 30.00	16.78
Terrazzo Worker Mechanic.....	\$ 34.41	21.42
Tile Setter & Marble Mason Mechanic.....	\$ 30.00	16.78
Tile, Marble & Terrazzo Finisher.....	\$ 30.00	16.78

BRIN004-021 06/01/2023		

BARTHOLOMEW and MONROE COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 34.17	17.54
TERRAZZO FINISHER.....	\$ 23.38	13.15
TERRAZZO WORKER/SETTER.....	\$ 36.38	17.24
Tile & Marble Finisher.....	\$ 24.33	13.16
Tile & Marble Setter; Mosaic Worker.....	\$ 35.63	17.23

BRIN0011-001 06/01/2023		

LAFAYETTE

BENTON, CARROLL, CLINTON, FOUNTAIN, TIPPECANOE, WARREN and
WHITE COUNTIES

	Rates	Fringes
Bricklayer, Stonemason, Pointer, Caulker & Cleaner.....	\$ 33.75	20.12
TERRAZZO FINISHER.....	\$ 23.38	13.15
TERRAZZO WORKER/SETTER.....	\$ 36.38	17.24
Tile & Marble Finisher.....	\$ 24.33	13.16
Tile & Marble Setter; Mosaic Worker.....	\$ 35.63	17.23

BRIN0018-001 06/01/2023		

CASS, FULTON, GRANT, HOWARD, MIAMI and WABASH COUNTIES

	Rates	Fringes
Bricklayer, Stonemason, Pointer, Caulker & Cleaner.....	\$ 34.00	19.71
Terrazzo Worker Finisher.....	\$ 35.50	23.62
TERRAZZO WORKER/SETTER.....	\$ 33.50	23.62
Tile & Marble Finisher.....	\$ 34.50	23.62
Tile, Marble Setter.....	\$ 34.50	23.62

BRIN0019-001 06/01/2023		

MUNCIE CHAPTER

BLACKFORD, DELAWARE, HAMILTON, JAY, MADISON AND TIPTON COUNTIES:

Rates	Fringes
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Bricklayer, Stonemason, Pointer, Caulker & Cleaner.....	\$ 33.83	20.14
TERRAZZO FINISHER.....	\$ 23.38	13.15
TERRAZZO WORKER/SETTER.....	\$ 36.38	17.24
Tile & Marble Finisher.....	\$ 23.38	13.15
Tile & Marble Setter; Mosaic Worker.....	\$ 35.63	17.23

 CARP0215-001 06/01/2023

BENTON, CARROLL, CLINTON, TIPPECANOE, WARREN AND WHITE
 COUNTIES:

	Rates	Fringes
CARPENTER.....	\$ 33.84	24.21
MILLWRIGHT.....	\$ 34.39	25.09

 CARP0232-001 06/01/2023

ALLEN, DEKALB, NOBLE, STEUBEN and WHITLEY COUNTIES

	Rates	Fringes
Carpenter & Piledrivermen.....	\$ 30.70	233.38

 CARP0615-001 06/01/2023

ADAMS, CASS, FULTON, GRANT, HOWARD, HUNTINGTON, MIAMI, TIPTON,
 WABASH and WELLS COUNTIES

	Rates	Fringes
Carpenter & Piledrivermen.....	\$ 30.37	22.49

 * CARP0912-001 06/01/2023

	Rates	Fringes
CARPENTER		
ZONE 2: BOONE, FOUNTAIN, HENDRICKS, MONROE, MONTGOMERY AND MORGAN COUNTIES		
Carpenters, Drywall.....	\$ 34.10	23.39
Millwright.....	\$ 35.00	25.00
ZONE 4: BLACKFORD, DELAWARE, JAY AND MADISON COUNTIES		
Carpenters, Drywall.....	\$ 33.81	23.39
Millwright.....	\$ 35.00	25.00

 * CARP0912-002 06/01/2023

HAMILTON, HANCOCK, JOHNSON (Townships of White River, Pleasant
 and Clark), MARION

	Rates	Fringes
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Carpenters:

Carpenters, Drywall		
Installers, Piledrivers.....	\$ 35.61	23.26
Millwright.....	\$ 35.00	25.00
Soft Floor Layers.....	\$ 28.85	18.63

* CARP0999-008 06/01/2023

BARTHOLOMEW, JOHNSON (Townships of Union, Hensley, Franklin, Nineva, Needham and Blue River), SHELBY COUNTIES

Rates Fringes

Carpenters:

Carpenters, Drywall		
Installers, Piledriver.....	\$ 32.64	23.39
Millwright.....	\$ 35.00	25.00
Soft Floor Layers.....	\$ 28.85	18.63

* CARP1029-001 06/01/2023

ADAMS, ALLEN, CASS, DEKALB, ELKHART, FULTON, GRANT, HOWARD, HUNTINGTON, KOSCIUSKO, LAGRANGE, MARSHALL, MIAMI, NOBLE, ST. JOSEPH, STEUBEN, TIPTON, WABASH, WELLS and WHITLEY COUNTIES

Rates Fringes

MILLWRIGHT.....	\$ 32.55	27.94
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ELEC0305-002 05/01/2023

ADAMS, ALLEN, DE KALB, HUNTINGTON, NOBLE, STEUBEN, WELLS, and WHITLEY COUNTIES

Rates Fringes

ELECTRICIAN.....	\$ 36.32	27.42%+11.21
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ELEC0481-005 05/31/2023

BARTHOLOMEW, BOONE, HAMILTON, HANCOCK, HENDRICKS, JOHNSON, MADISON, MARION, MONTGOMERY, MORGAN AND SHELBY COUNTIES

Rates Fringes

ELECTRICIAN.....	\$ 40.20	26.31
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ELEC0538-006 01/01/2023

FOUNTAIN AND WARREN COUNTIES:

Rates Fringes

ELECTRICIAN.....	\$ 37.31	23.15
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ELEC0668-002 01/01/2023

BENTON, CARROLL, CASS, FULTON, TIPPECANOE and WHITE COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 36.56	22.41

FOOTNOTE: a. PAID HOLIDAYS: New Years Day, Memorial Day, July 4th, Labor Day, Veterans Day Thanksgiving Day and Christmas Day

ELEC0725-006 06/01/2022

MONROE COUNTY

	Rates	Fringes
Communication Technician.....	\$ 30.00	18.07

Includes the installation, operation, inspection, maintenance, repair and service of radio, television, recording, voice sound and vision production and reproduction apparatus, equipment and appliances used for domestic, commercial, education, entertainment and private telephone systems.

ELEC0725-011 10/01/2022

MONROE COUNTY:

	Rates	Fringes
ELECTRICIAN.....	\$ 40.00	21.96

ELEC0855-003 06/01/2023

BLACKFORD, DELAWARE, AND JAY COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 35.30	20.25

ELEC0873-002 03/01/2022

CLINTON, GRANT, HOWARD, MIAMI, TIPTON AND WABASH COUNTIES:

	Rates	Fringes
ELECTRICIAN.....	\$ 36.59	20.12

ELEV0034-001 01/01/2023

BARTHOLOMEW, BENTON, BLACKFORD, BOONE, CARROLL, CASS, CLINTON, DELAWARE, FOUNTAIN, FULTON, GRANT, HAMILTON, HANCOCK, HENDRICKS, HOWARD, JAY, JOHNSON, MADISON, MARION, MIAMI, MONROE, MONTGOMERY, MORGAN, SHELBY, TIPPECANOE, TIPTON, WARREN and WHITE COUNTIES

	Rates	Fringes
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ELEVATOR MECHANIC.....\$ 55.30 37.335+a+b

a) PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Vetern's Day, Thanksgiving Day, the Friday after Thanksgiving, and Christmas Day.

b) Employer contributes 8% of regular hourly rate to vacation pay credit for employee with more than 5 years of service; 6% for less than 5 years' service.

ELEV0044-002 01/01/2023

ADAMS, ALLEN, DeKALB, HUNTINGTON, NOBLE, STEUBEN, WABASH, WELLS, WHITLEY COUNTIES

Rates Fringes

ELEVATOR MECHANIC.....\$ 57.26 37.335+a+b

a) PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, the Friday after Thanksgiving, and Christmas Day.

b) Employer contributes 8% of regular hourly rate to vacation pay credit for employee with more than 5 years of service; 6% for less than 5 years' service.

ENGI0103-001 04/01/2021

BENTON, CARROLL, CASS, CLINTON, GRANT, HOWARD, MIAMI, TIPPECANOE, TIPTON, WABASH, and WHITE COUNTIES

Rates Fringes

Power equipment operators:

GROUP 1.....	\$ 37.08	19.96
GROUP 2.....	\$ 36.13	19.96
GROUP 3.....	\$ 32.08	19.96
GROUP 4.....	\$ 28.38	19.96

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: A-Frame Winch Truck, Air Compressors over 600 cu.ft., Air Tugger, Autograde (CMI), Auto Patrol, Backhoe, Ballast Regulator (RR), Batcher Plant (electrical control concrete), Bending Machine (pipe), Bituminous Plant (engineer), Bituminous Plant, Bituminous Mixer Travel Plant, Bituminous Paver, Bituminous Roller, Buck Hoist, Bull Dozer, Cable Way, Chicago Boom, Clamshell, Concrete Mixer (21 cu. ft. or over), Concrete Paver, Concrete Pump(crete), Crane, Craneman, Crusher Plant, Derrick, Derrick Boat, Dinkey, Dope Pots (pipeline), Dragline, Dredge Operator, Dredge Engineer, Drill Operator,, Elevating Grader, Elevator, Ford Hoe (or similar type equipment), Forklift, Formless Paver, Gantry Crane, Gradall, Grademan, Grout Pump, Helicopter Crew, Heterington Paver, High-Lift, Hoist, Hopto, Hough Loader (or similar type), Hydro Crane, Hydro Hammer, Locomotive Crane,

Locomotive, Mechanic, Mobile Mixer, Motor Crane, Mucking Machine, Multiple Tamping Machine (rr), Overhead Crane, Pile Driver, Pulls, Push Dozer, Push Boats, Roller (sheep foot), Ross Carrier, Scoop, Shovel, Side Boom, Swing Crane, Tail Boom, Tar Machine (pipeline), Throttle Valve, Tower Crane, Trench Machine, Welder (heavy duty), Truck Mounted Concrete Pump, Truck-Mounted Drill, Well Point, Whirleys

GROUP 2: Air Compressor (up to 600 cu. ft.), Brakeman, Bull Float, Concrete Mixer (over 10s and under 21s), Concrete Spreader or Puddler, Deck Engine, Drill Helper, Electric Vibrator Kompactor (earth or rock), Finishing Machine, Gireman, Greaser (on grease facilities servicing heavy equipment), Material Pump, Motor Boats, Motor Crane Oiler, Portable Loader, Post Hole Digger, Power Broom, Rock Roller, Roller-Wobble Whell (earth or rock), Spike Machine (RR) Seamen Tiller, Spreader Rock, Sub Grader, Tamping Machine, Truck Mounted Drill Oiler, Welding Machine, Widener (apsco or similar type)

GROUP 3: Air Compressor 210 cu ft & over, Bituminous Distributor, Chair Cart, Concrete Curing Machine, Concrete Saw, Dope Pot Power Agitated, Flex Plane, Form Grader, Hydrohammer, Jacks Hydraulic Power Driven, Paving Joint Machine, Post Hole Digger, Roller Earth, Throttle Valve, Track Jack Power Driven, Tractor Farm Type, Truck Crane Driver

GROUP 4: Air Compressor (under 200 cu. fr. per min), Bituminous Distributor, Cement Gun, Concrete Saw, Conveyor, Deck Hand Oiler, Earth Roller, Form Grader, Generator, Guardrail Driver, Heater, Oiler, Paving Joint Machine, Power Traffic Signals, Steam Jenny, Vibrator, Water Pump, ""JLG"" Lifts and ""Scissor"" Lift or similar machine

ENGI0103-002 04/01/2021

BLACKFORD, DELAWARE, HAMILTON, HANCOCK, JAY, JOHNSON, MADISON, MARION, and SHELBY COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP 1.....	\$ 37.08	19.96
GROUP 2.....	\$ 36.13	19.96
GROUP 3.....	\$ 32.08	19.96
GROUP 4.....	\$ 28.30	19.96

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Air Compressor (pressurizing shafts, tunnels & drivers); Air Tugger; Auto Patrol; Back Filler; Back Hoe; Boom Cat; Boring Machine; Bull Dozer; Caisson Drilling Machine; Cherry Picker; Compactor (with dozer blade); Concrete Mixer (dual drum); Concrete plant; Concrete Pump; Crane with all attachments; Crane- Electric overhead; Derrick; Ditching Machine (18' and over); Dredge; Elevators (when hoisting material or tools); Fork Lift (machinery); Formless Paver; Generator (power for welders of compressor); Gradall; Helicopter; Helicopter Winch

Operator; High Lift-Front End Loader; Hoist-Material and/or Personnel over 3 Floors; Locomotive; Mechanic on job site; Mucking Machine; Panel Board Concrete Plant; Pile Driver; Push Cat; Scoop & Tractor; Scraper-Rubber Tired; Spreader-Tractor Mounted; Straddle Carrier-Ross Type; Sub Base Finish Machine (C.M.I. or smiliar); Tower Crane; Tractor with Backhoe (over 1/2 yard); Welder (craft)

GROUP 2: A Frame Truck; Batch Plant (automatic dry batch); Bending Machine-Power Driven; Bituminous Mixer; Bituminous Paver; Bituminous Plant Engineer; Boatman; Bull Float; Compactor or Tamper-Self Propelled; Concrete Mixer (21 cu. ft. or over); Concrete Spreader-Power Driven; Dinkey Engine; Ditching Machine; Ditching Machine (less than 18"); Drilling Machine; Finish Machine & Bull Float; Finishing Machine; Fireman-Pile Driving and Boilers; Fork Lift-Masonry & Material; Gunite Machine; Head Greaser; Hoist-Material and/or personnel 3 floors and under; Mechanic in shop; Mesh Depresser-Mesh Placer; P.C.C. Concrete Belt Placer; Ruller-Asphalt, stone & sub base; Sheepsfoot Roller- Self Propelled; Shop Mule; Spreader or Base Paver-Self Propelled; Sub Grader; Throttle valve with air compressor or boiler; Tractor with Backhoe (1/2 yard & under); Tractor-high lift-farm type; Tractor-Industrial Type; Tractor with Winch; Well Points; Winch Trick

GROUP 3: Air Compressor (210 cu. ft. & over); bituminous Distributor; Chair Cart; Concrete Curing Machine; Concrete Saw; Dope Pot Power Agitated; Flex Plane; Form Grader; Hydrohammer; Jacks-Hydraulic-Power Driven; Minor Equipment opr. 3,4, or 5; Paving Joint Machine; Post Hole Digger; Roller-Earth; Throttle Valve; Track Jack-Power Driven; Tractor-Farm Type; Truck Crane Driver

GROUP 4: Air Compressor (less than 210 cu. ft.); Concrete Mixer (under 21cu. ft.); Conveyor; Generator; Mechanical Heater; Oiler; Operator-2 pieces of miner equipment; Power Broom; Pump; Welding Machine

 ENGI0103-007 04/01/2021

ADAMS, ALLEN, DEKALB, HUNTINGTON, STEUBEN, WELLS, and WHITLEY COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP 1.....	\$ 37.08	19.96
GROUP 2.....	\$ 36.13	19.96
GROUP 3.....	\$ 32.08	19.96
GROUP 4.....	\$ 28.30	19.96

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Air Tugger; Auto Patrol, Back Filler; Back Hoe; Boom Cat; Boring Machine; Bull Dozer; Caisson Drilling Machine; Cherry Picker; Compactor (with dozer blade); Concrete Mixer (dual drum); Concrete Plant; Concrete Pump; Crane with all attachments; Crane Electric overhead; Derrick; Ditching Machine (18" and over); Dredge; Fork

Lift (machinery); Formless Paver; Gradall; Helicopter; Helicopter Winch Operator; High Lift Front End Loader; Hoist Material and/or personnel over 3 floors; Locomotive; Mechanic on Job Site; Mucking Machine; Panel Board Concrete Plant; Pile Driver; Push Cat; Scoop & Tractor; Scraper Tubber Tired; Skid Steer Machine (grading and back hoe); Spreader Tractor Mounted; Straddle Carrier Ross Type; Sub Base Finish Machine (C.M.I.or similar); Tower Crane; Tractor with backhoe (over 1/2 yard); Welder for Craft Work.

GROUP 2: A-Frame Truck; Batcher Plant (automatic dry batch); Bending Machine Power Driven; Bituminous Mixer; Bituminous Paver; Bituminous Plant Engineer; Boatman; Bull Float; Compactor or Tamper Riding Only; Concrete Mixer (21 cu. ft. or over); Concrete Spreader Power Driven; Dinkey Engine; Ditching Machine (less than 18" riding only); Drilling Machine; Elevators (when hoisting material or tools); Finish Machine and bull Float (excluding trowelling machine); Fireman Pile Driving and Boilers; Guniting Machine; Head Greaser; Hoist Material and/or personnel 3 floors and under; Mesh Depressor Mesh Placer; P.C.C. Concrete Belt Placer; Roller Asphalt, Stone & Sub Base; Sheepsfoot Roller Self Propelled; Shop Mule; Spreader or Base Paver Self Propelled; Sub Grader; Throttle Valve with Air Compressor or Boiler; Tractor with Backhoe (1/2 yard & under); Tractor High Lift Farm Type; Tractor Industrial Type; Tractor with Winch; Winch Truck.

GROUP 3: Bituminous Distributor; Chair Cart; Concrete Cutting Machine; Dewatering Systems; Dope Pot Power Agitated; Flex Plane; Fork Lift (masonry and material); Form Grader; Hydrohammer; Jacks Hydraulic Power Driven; Paving Joint Machine; Post Hole Digger (machine Mounted); Roller Earth; Skid Steer Machine (fork lift and transporting); Throttle Valve; Track Jack Power Driven; Tractor Farm Type.

GROUP 4: Air Compressor (pressurizing shafts, tunnels and divers); Air Compressor (over 210 cu. ft.); Concrete Saw; Conveyor; Generators; Oiler; Operating minor equipment; Power Broom; Truck Crane Driver; Welding Machines over 300 amps (2 or more).

 ENGI0150-017 06/01/2022

FULTON and NOBLE COUNTIES

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 30.75	34.25
GROUP 2.....	\$ 29.40	34.25
GROUP 3.....	\$ 28.60	34.25
GROUP 4.....	\$ 27.80	34.25
GROUP 5.....	\$ 25.20	34.25

POWER EQUIPMENT OPERATOR CLASSIFICATIONS:

GROUP 1: Mechanic, Asphalt Plant, Asphalt Spreader, Auto Grader; Batch Plant, Benoto (requires 2 Engineers), Boiler and Throttle Valve, Boring Machine (road), Bulldozers (with engines of 140 net horse power or more) Caisson Rigs,

Central Redi-mix Plant, Concrete Conveyor Systems, Concrete Power (over 27E cu. ft.), Concrete Paver (27E cu. ft. and under), Concrete Pumps/Grout concrete placer (Truck Mounted), Concrete Tower, Cranes and backhoes (all), Cranes, Hammerhead Tower, Creter Crane, Derricks (all), Forklift (capble of hoisting and mechanically moving forks horizontally), Grader, Elevating, Highlift Shovels or Front End Loaders (over 3 yd bucket), Hoists (2 or more drums), Locomotives (all), Laser screed, Motor Patrol, Pile Drivers and Skid Rig, Pre-Stress Machines, Pump Cretes & Similar Types, Rock Drill (Self-Propelled), Rock Drill (self propelled Truck Mounted), Scoops (tractor drawn), Slip-Form Paver, Tournapull, Tractor with Boom & Side Boom, Trenching Machine (12 or more inches in width), Combination Backhoe Front End Loader Machine with backhoe 1/2 yd bucket or attachments.

GROUP 2: Air Compressor (600 cu. ft. and over), Bob Cat (over 3/4 cu. yd.), Boilers, Broom (all powered propelled), Bull Dozers with engines of less than 140 net horsepower, combination backhoe front end loader 1/2 yf bskhhoe or under, Compressor and Throttle Valve, Concrete Breaker (truck mounted), Concrete Mixer (of moore than 21 cu. ft. capacity), Forklift (with fixed or tilt mast), Greaser Engineer, Highlift shovel or front endloader 3 yd bucket and under, Hoists (1 drum), Hydrulic Boom Truck, Post Hole Digger (vehicle mounted), Pump Cretes (squeeze crete type pumps, Gypsum, bulker , Rollers(all), Steam Generators, Stone Crushers, Stradddle Buggies, Tractors, Winch Trucks (with ""a"" frame.

GROUP 3: Buck Hoist, Combination (small equipment operator), .Conveyor (portable), Grouting Machine, Hoist Elevators (material and personnel), Hydraulic Power Units, Grouting and Pile Driving, Stud Welder, Trenching Machines less than 12 inches in width, Welding Machines (8 through 15).

GROUP 4: Bobcat (up to and including 3/4 cu. yd.). Compressor (over 210 cu. ft. and less than 600 cu. ft.), Generator (over 50 kw.), Heaters, Mechanical, Hoists (all elevator, permanent installation), Hoist (automatic), Hoist (tugger single drum), Oilers, Pumps, Well Points and electric submersible, Small Rubber Tired End Loaders (1/4 cu. yd. and under), Tractors (farm type) Welding Machines (2 through 8).

GROUP 5: Bobcats and forklifts (commercial or residential).

 ENGI0181-004 04/01/2023

BARTHOLOMEW COUNTY

	Rates	Fringes
Power equipment operators:		
GROUP A.....	\$ 38.53	19.22
GROUP B.....	\$ 30.40	19.22

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP A: A-frame winch truck, articulating dump, autograde

(CMI), auto patrol, ballast regulator (RR), batcher plant (electrical control concrete), bending machine (pipe), bituminous plant (engineer), bituminous plant, bituminous mixer travel plant, bituminous paver, bituminous roller, boring machine, buck hoist, bull dozer, cable way, Chicago boom, chimney hoist, clamshell, concrete mixer (21 cu.ft. or over), concrete paver, concrete pump (crete), construction elevator (Allmac or similar) creane, creaneman, crawler backhoe, bcreawler high-lift, crusher plant, derrick, derrick boat, dinkey, directional/boring machine, dope pots (pipeline), double drum tugger (electric or air), dragline, dredge operator, dredge engineer, drill operator, elevating grader, extendable boom forklift, formless paver, gantry crane, gator (or similar type tiller), gradeall, grader, grademan, greaser (on grease facility servicing heavy equipment), G.P.S. System (on equipment within the classificaitons), grout pump, head greaser, helicopter crew, Hetherington paver, hoist (motorized, gas or diesel), hydraulic crane, ghdro blaster, Industrial type forklift (over 9,000 lbs.), laser concrete screed, laser or remote controlled equipment (within the classifications), locomotive crane, locomotive, mechanic, mobile mixer, botor creane, mucking machine, multiple tamping machine (RR) overhead crane, pile driver, pulls, push dozer, push boats, roller (sheep foot), rough terrain crain, R.T. backhoe, R.T. endloader, Ross carrier, scoop, shovel, side boom, skidsteer loader (bobcat or similar type), swing crane, tail boom, tar machine (pipeline), tower crane, trench machine, welder (heavy duty), truck mounted concrete pump, truck-mounted drill, vacuum truck, well point, whirleys

GROUP B: Air compressor (1 or more, 600 cfm and over), air compressor with throttle valve, bituminous distributor, brakeman, bullfloat, cement gun, concret mixer, concrete say, soncrete spreader or puddlers, conveyor, deck hand oiler, deck engine, drill helper, earth roller electric vibrator compactor (earth or rock), elevator (in-plant, automatic), finishing machine fireman, form grader, generator, guard-rail driver, heater, oiler, Industrial type forklift (9,000 lbs and under), aterail pump, motor boats, paving joint machine, post hole digger, power broom, power traffic signals, rock roller, rock spreader, Roller (earth or rock), spike machine (RR), steam jenny, sub grader, taping machine, gruck crane oiler, truck mounted drill oiler Tugger (one-drum, air or electric)vibrator, vibro-piling hammer- hydraulic hammer or auger, water pump, widener (apsco or similar type) welding machine, JLG lifts and scissor lifts or similar machine.

 ENGI0841-008 04/01/2023

BOONE, FOUNTAIN, HENDRICKS, MONROE, MONGOMERY, MORGAN, and WARREN COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP 1.....	\$ 33.90	23.00
GROUP 2.....	\$ 26.75	23.00

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Power Cranes, Draglines, Derricks, Shovels, Gradalls, Mechanics, Tractor Highlift, Tournadozer. Concret Mixers with Skip Tournamixer, Two-Drum Machine, One-Drum Hoist with Tower or Boom, Cableways, Tower Machines, Motor Patrol, Boo Tractor, Boom or Winch Truck, Winch or Hydraulic Boom Truck, Truck Crane, Tournapull, Tractor Operating Scoops, Bulldozer, Push Tractor, Asphalt Planer, Finishing Machine on Asphalt, Large Rollers on Earth, Rollers on Asphalt Mix, Ross Carrier or Similar Machine, Gravel Processing Machine, Asphalt Plant Engineer, Paver Operator, Farm Tractor with Half Yard Bucket and/or Backhoe Attachments, Dredge Engineer, or Dredge Operator, Central Mix Plant Engineer, CMI or Similar Type Machine, Truck or Skid Mounted Concrete Pump, Tower Crane, Engine or Rock Crusher Plant, Concrete Plant Engineer, Ditching Machine with Dual Attachment, Tractor Mounted Loaders, Cherry Picker, Hydro Crane, Standard or Dinkey Locomotives, Scoopmobiles, Euclid Loader, Soil Cement Machine, Back Filler, Elevating Machine, Power Blade, Drilling Machines including Well Testing, Caissons, Shaft or any similartype Drilling Machines, Motor Driven Paint Machine, Pipe Cleaning Machine, Pipe Wrapping Machine, Pipe Bending Machine, Apsco Paver, Boring Machine, (Equipment Greased), Barber-Greene Loaders, Formless Paver, (Well Point System), Concrete Spreader, Hydra Ax, Span Saw and Similar Types, Marine Scoops, Brush Mulcher, Brush Burner, Mesh Placer, Tree Mover, Helicopter Crew (3), Piledriver-Skid or Crawler, Stump Remover, Root Rake, Tug Boat Operator, Refrigerating Machine, Freezing Operator, Chair Cart-Self Propelled, Hydra Seeder, Straw Blower Power Sub Grader, Bull Float, Finishing Machine, Self-Propelled Pavement Breaker (Backhoe Attached), Lull (or Similar Type Machine), Two Air Compressors, Compressors Hooked in Manifold, Overhead Crane, Chip Spreader, Mud Cat, Sull-Air Fork Lifts (Except when used for Landscaping Work), Soil Stabilizer (Seaman Tiller, Bo Mag, Rago Gator and Similar types or Equipment), Tube Float, Spray Machine, Curing Machine, Concrete or Asphalt Milling Machine, Snooper Truck Operator.

GROUP 2: Concrete Mixers without Skips, Rock Crusher, Ditching Machine Under 6', Curbing Machine, One Drum Machines without Tower or Boom, Air Tugger, Self-Propelled Concrete Saw, Machin- Mounted Post Hole Digger, Two to Four Generators, Water Pumps, or Welding Machines, with 400 ft., Air Compressor 600 cu. ft. and Under, Rollers on Aggregate and Seal Coat Surfaces, Fork Lifts (When used for Landscaping Work), Concrete and Blacktop Curb Machine, Farm Tractor with less than Half Yard Bucket, One Water Pump, Iolers, Air Valves or Steam Valves, One Welding Machine, Truck Jack, Mud Jack, Gunnite Machine, House Elevators when used for Hoisting Material, Engine Tenders, Wagon Drill, Flex Plane, Conveyor, Siphons nad Pulsometer, Switchman, Fireman on Paint Pots, Fireman on Asphalt Plants, Distributor Operators on Trucks, Tampers, Self-Propelled Power Broom, Striping Machine (motor driven), Form Tamper, Bulk Cement Plan Equipment Greaser, Deck Hands, Truck Crane Oiler Driver, Cement Blimps, Form Grader, Temporary Heat, Throttle Valve, Farm Tractor, Super Sucker (and similar type of equipment). FOOTNOTE: Employees operating booms

from 149 ft. to 199 ft. including jib, shall receive an additional seventy five cents (.75)per hour above the rate. Employees operating booms over 199 ft. including jib, shall receive an additional one dollar and twenty-five cents (\$1.25) per hour above the regular rate.

IRON0022-004 06/01/2023

BARTHOLOMEW; BENTON, BOONE; CARROLL; CASS; CLINTON; DELAWARE (S 2/3); FOUNTAIN; FULTON (SW 1/4 OF COUNTY); GRANT (SW PORTION); HAMILTON; HANCOCK; HENDRICKS; HOWARD; JOHNSON; MADISON; MARION; MIAMI; MONROE; MONTGOMERY; MORGAN; SHELBY; TIPPECANOE; TIPTON; WARREN AND WHITE COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 35.45	25.39

The following holidays shall be observed: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and the day after Thanksgiving and Christmas Day. Any holiday which occurs on a Sunday shall be observed the following Monday, unless the legal observance of these holidays is changed by law.

IRON0147-004 06/01/2023

ADAMS, ALLEN, BLACKFORD, DEKALB, DELAWARE (NORTHEAST THIRD OF COUNTY), FULTON (EASTERN PART), GRANT (EXCLUDING SOUTHWEST PORTION), HUNTINGTON, JAY, MIAMI (NORTHEAST HALF), NOBLE (EXCLUDING NORTHEAST TIP), STEUBEN, WABASH, WELLS, and WHITLEY COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 33.00	25.59

IRON0292-006 06/01/2023

FULTON (Remainder of County) and NOBLE (Northeastern Tip) COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 35.15	24.45

LABO0120-001 06/01/2023

MARION and SHELBY COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 27.24	17.50
GROUP 2.....	\$ 27.99	17.50
GROUP 3.....	\$ 28.74	17.50

LABORER CLASSIFICATIONS

GROUP 1: Building and Construction Laborers; Scaffold Builders (other than for Masons and Plasterers); Mechanic Tenders; Window Washers and cleaners; Railroad Workers; Masonry Wall Washers; Portable Water pumps with discharge up to (3) inches; Flag & Signal Person; Waterproofing; Handling of Creosot Lumber or like treated material (excluding railroad material); Asphalt Rakers and Lutemen; Kettlemen; Air Tool Operators; Pneumatic Tool Operators; Air and Electric Vibrators and Chipping Hammer Operators; Earth Compactors Jackmen and Sheetmen working Ditches deeper than (6) ft.in depth; Laborers working in ditches (6) ft.in depth or deeper; Assembly of Unicrete Pump; Chain Saw and Demolition Saw; Tile Layers (sewer or field) and Sewer Pipe Layer (metallic or non-metallic); Motor driven Wheelbarrows and Concrete Buggies; Hyster Operators; Pump Crete Assemblers; Concrete Conveyor Assemblers; Core Drill Operators; Cement, Lime or Silica Clay Handlers (bulk or bag); Handling of Toxic Materials damaging to clothing; Pneumatic Spikers; Deck Engine and Winch Operators; Water Main and Cable Ducking (metallic and non-metallic); Screed Man or Screw Operator on Asphalt Paver; Asbestos Removal and Hazardous Waste Removal.

GROUP 2: Plaster Tenders; Mortar Mixers; Welders (Acetylene or electric); Cutting Torch or Burner; Cement Nozzle Laborers; Cement Gun Operator; Scaffold Builders when working for Plasterers and Masons; Water Blast Machine.

GROUP 3: Dynamite men, Mason Tenders; Drillers-air track or wagon drilling for explosives.

LABO0204-001 06/01/2023

FOUNTAIN, HENDRICKS, and WARREN COUNTIES

	Rates	Fringes
Laborers:		
Caisson and Tunnel Work in		
Compressed and Free Air		
GROUP 1.....	\$ 23.18	16.00
GROUP 2.....	\$ 23.93	16.00
GROUP 3.....	\$ 24.18	16.00
GROUP 4.....	\$ 23.13	16.00
LABORERS		
GROUP 1.....	\$ 26.03	17.50
GROUP 2.....	\$ 26.78	17.50
GROUP 3.....	\$ 27.53	17.50

LABORER CLASSIFICATIONS

GROUP 1: Building and Construction Laborers; Scaffold Builders (other than for Masons and Plasterers); Mechanic Tenders; Window Washers and cleaners; Railroad Workers; Masonry Wall Washers; Portable Water pumps with discharge up to (3) inches; Flag & Signal Person; Waterproofing; Handling of Creosot Lumber or like treated material (excluding railroad material); Asphalt Rakers and Lutemen; Kettlemen; Air Tool Operators; Pneumatic Tool Operators;

Air and Electric Vibrators and Chipping Hammer Operators; Earth Compactors Jackmen and Sheetmen working Ditches deeper than (6) ft.in depth; Laborers working in ditches (6) ft.in depth or deeper; Assembly of Unicrete Pump; Chain Saw and Demolition Saw; Tile Layers (sewer or field) and Sewer Pipe Layer (metallic or non-metallic); Motor driven Wheelbarrows and Concrete Buggies; Hyster Operators; Pump Crete Assemblers; Concrete Conveyor Assemblers; Core Drill Operators; Cement, Lime or Silica Clay Handlers (bulk or bag); Handling of Toxic Materials damaging to clothing; Pneumatic Spikers; Deck Engine and Winch Operators; Water Main and Cable Ducking (metallic and non-metallic); Screed Man or Screw Operator on Asphalt Paver, Asbestos Removal, Hazardous Waste Removal.

GROUP 2: Plaster Tenders; Mortar Mixers; Welders (Acetylene or electric); Cutting Torch or Burner; Cement Nozzle Laborers; Cement Gun Operator; Scaffold Builders when working for Plasterers and Masons; Water Blast Machine.

GROUP 3: Dynamite men, Mason Tenders; Drillers-air track or wagon drilling for explosives.

LABORER CLASSIFICATIONS For CAISSON AND TUNNEL WORK In COMPRESSED and FREE AIR

GROUP 1: Cage Tenders, Dump Men, Flagman, Signalman, Top Laborers, Rod Men.

GROUP 2: Concrete Repairmen, Lock Tenders (pressure side), Motor men, Muckers, Grout Machine, Track Layers, Air Hoist, Key Board, Agitator Car, Car Pushers, Concrete Laborers, Grout Laborers, Lock Tenders (free air side), Steel Setters, Tuggers, Switchmen.

GROUP 3: Mucking Machine, Laser Beam, Liner Plate & Ring Setter, Shield Drivers, Power Knife, Welders Burners, Pipe Jacking Machine, Skinners, Maintenance Technician, Miner, Bricklayer Tenders, Concrete Blowers, DRillers, Erectors, Form Men, Jackhammermen, Mining Machine.

GROUP 4: Dynamite Men, Drillers air track or wagon drilling for explosives.

LAB00213-001 06/01/2023

ADAMS, ALLEN, DEKALB, HUNTINGTON, NOBLE, STEUBEN, WABASH, WELLS AND WHITLEY COUNTIES

	Rates	Fringes
Laborsers:		
GROUP 1.....	\$ 24.13	17.30
GROUP 2.....	\$ 24.63	17.30
GROUP 3.....	\$ 25.13	17.30

LABORERS CLASSIFICATION

GROUP 1: Building and Construction Laborers; Scaffold Builders (other than for Masons and Plasterers); Mechanic

Tenders; Window Washers and cleaners; Railroad Workers; Masonry Wall Washers; Portable Water pumps with discharge up to (3) inches; Flag & Signal Person; Waterproofing; Handling of Creosot Lumber or like treated material (excluding railroad material); Asphalt Rakers and Lutemen; Kettlemen; Air Tool Operators; Pneumatic Tool Operators; Air and Electric Vibrators and Chipping Hammer Operators; Earth Compactors Jackmen and Sheetmen working Ditches deeper than (6) ft.in depth; Laborers working in ditches (6) ft.in depth or deeper; Assembly of Unicrete Pump; Tile Layers (sewer or field) and Sewer Pipe Layer (metallic or non-metallic); Motor driven Wheelbarrows and Concrete Buggies; Hyster Operators; Pump Crete Assemblers; Core Drill Operators; Cement, Lime or Silica Clay Handlers (bulk or bag); Handling of Toxic Materials damaging to clothing; Pneumatic Spikers; Deck Engine and Winch Operators; Water Main and Cable Ducking; Screed Man or Screw Operator on Asphalt Paver; Chain and Demolition Saw Operators; Concrete Conveyor Assemblers

GROUP 2: Plaster Tenders; Mortar Mixers; Welders (Acetylene or electric); Cutting Torch or Burner; Cement Nozzle Laborers; Cement Gun Operator; Scaffold Builders when working for Plasterers; Water Blast Machine

GROUP 3: Dynamite men-drillers-air track or wagon drilling for explosives

LAB00274-001 06/01/2023

BENTON, BOONE, CARROLL, CASS, CLINTON, FULTON, HOWARD, MIAMI, MONTGOMERY, TIPPECANOE, TIPTON, and WHITE COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 26.08	17.50
GROUP 2.....	\$ 26.83	17.50
GROUP 3.....	\$ 25.08	17.00

LABORER CLASSIFICATIONS

GROUP 1: Building and construction laborers; Scaffold builders (other than for masons or plasterers); Railroad Workers; Masonry Wall Washers (interior & exterior); All Portable Water Pumps with Discharge of Up to Three (3) Inches; Handling of Creosote Lumber or Like Treated Material (excluding railroad material); Asphalt Rakers and Lutemen; Earth Compactors; Jackmen and Sheetmen Working Ditches Deeper than Six (6) Feet in Depth; Laborers Working Ditches Six (6) Feet in Depth or Deeper; Assembly of Unicrete Pump; Tile Layers (sewer or field) and Sewer Pipe Layers (metallic or non-metallic); Motor Driven Wheelbarrows and Concrete Buggies; Hyster Operators; Pump Crete Assemblers; Core Drill Operators; Cement, Lime or Silica Clay Handler (bulk or bag); Handling of Toxic Material Damaging to Clothing; Pneumatic Spikers; Deck Engine and Winch Operators; Water Main and Cable Ducking (metallic and non-metallic); Screed Man or Screw Operator on Asphalt Paver; Chain Saw and Demolition Saw Operators;

Concrete Saw; Concrete Conveyor Assemblers; Applying of Curing Compound; Sinking of Wellpoints; Dewatering Header Systems

GROUP 2: Plaster Tenders; Mortar Mixers; Welders (acetylene or electric); Cutting Torch or Burner; Cement Nozzle Laborers; Cement Gun Operators; Scaffold Builders for Plasterers; Scaffold Builders for Masons; Water Blast Machine Operators, Air and Electric Vibrators and Chipping Hammer Operators; Asbestos Removal; Hazardous Waste Removal; All Boiler Setters Laborers, including Expediters, Bottom Men and Bell Men.

GROUP 3: Dynamite man, Mason Tenders; Drillers-air track or wagon for explosives.

LAB00741-003 06/01/2023

BARTHOLOMEW, JOHNSON, MONROE, and MORGAN COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 25.98	17.50
GROUP 2.....	\$ 26.73	17.50
GROUP 3.....	\$ 27.48	17.50

LABORERS CLASSIFICATIONS

GROUP 1: Building and Construction Laborers; Scaffold Builders (other than for masons or plasterers); Railroad Workers; Masonry Wall Washers (interior & exterior); Portable Water Pumps with Discharge up to three (3)inches; Handling of Creosote Lumber or Like Treated Material (excluding railroad material); Asphalt Rakers and Lutemen; Earth Compactors; Jackmen and Sheetmen Working Ditches Deeper than Six (6) Feet in Depth; Laborers Working Ditches Six (6) Feet in Depth or Deeper; Assembly of Unicrete Pump; Tile Layers (sewer or field) and Sewer Pipe Layers (metallic or non-metallic); Motor Driven Wheelbarrows and Concrete Buggies; Hyster Operators; Pump Crete Assemblers; Core Drill Operators; Cement, Lime or Silica Clay Handler (bulk or bag); Handling of Toxic Material Damaging to Clothing; Pneumatic Spikers; Deck Engine and Winch Operators; Water Main and Cable Ducking (metallic and non-metallic); Screed Man or Screw Operator on Asphalt Paver; Chain Saw and Demolition Saw Operators; Concrete Saw; Concrete Conveyor Assemblers; Applying of Curing Compound; Sinking of Wellpoints; Dewatering Header Systems

GROUP 2: Plaster Tenders; Mortar Mixers; Welders (acetylene or electric); Cutting Torch or Burner; Cement Nozzle Laborers; Cement Gun Operators; Scaffold Builders for Plasterers; Scaffold Builders for Masons; Water Blast Machine Operators; Air Tool Operators and all Pneumatic Tool Operators, Air and Electric Vibrators and Chipping Hammer Operators; Asbestos Removal; Hazardous Waste Removal; Biler Setters Laborers, including expediters, bottom men and bell men.

GROUP 3: Dynamite men; Mason Tenders; Drillers-air track or

wagon drilling for explosives

LABO1112-001 06/01/2023

BLACKFORD, DELAWARE, GRANT, HAMILTON, HANCOCK, HENRY, JAY, & MADISON COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 25.66	17.50
GROUP 2.....	\$ 26.41	17.50
GROUP 3.....	\$ 27.16	17.50

LABORER CLASSIFICATIONS

GROUP 1: Building and construction laborers, scaffold builders (other than for masons or plasterers), mechanic tenders, window washers and cleaners, railroad workers, masonry wall washers, portable water pumps with discharge up to 3 inches, signal & flag person, Waterproofing, hauling of creosote lumber or like treated material (excluding railroad material), asphalt rakers and lutemen, kettlemen, air tool operator, pneumatic tool operator, air & electric vibrators and chipping hammer operator, earth compactors, jackman & sheetmen in ditches more than 6 feet deep, laborers in ditches 6' deep or deeper, assembly of uncrete pump, tile layers (sewer or field), sewer pipe layers, motor- driven wheelbarrows and concrete buggies, hyster operator, pumpcrete assemblers, core drill operator, cement, lime or silica clay handlers, handling of toxic materials damaging to clothing, pneumatic spikers, deck engine & winch operator, water main & cable ducking, screed man or screw operator on asphalt paver, chain saw & demolition saw operator, concrete conveyor assembler

GROUP 2: Plaster tenders; mortar mixers; welders (acetylene or electric); cutting torch or burner; cement nozzle laborers; cement gun operators; scaffold builders for plasterers; scaffold builders for masons; water blast machine operator; Air tool Operators and all Pnuematic Tool Operators, Air and Electric Vibrators and Chipping Hammer Operators; Asbestos removal; Hazardous waste removal; All Boiler Setters Laborers, including expediters, bottom men and bell men.

GROUP 3: Mason Tenders and Dynamite men-drillers-air track or wagon drilling for explosives

PAIN0047-003 06/01/2023

BARTHOLOMEW, BOONE, HAMILTON, HANCOCK, HENDRICKS, JOHNSON, MARION, MONROE, MORGAN AND SHELBY COUNTIES:

	Rates	Fringes
PAINTER		
Brush and Roller.....	\$ 29.52	15.89

Spray and Sandblasting.....\$ 30.52 15.89

 PAIN0080-001 06/01/2023

BENTON, CARROLL, CASS, CLINTON, FOUNTAIN, MONTGOMERY TIPPECANOE
 AND WARREN COUNTIES

Rates Fringes

PAINTER

Brush and Roller.....\$ 28.68 17.51
 Spray and Sandblasting.....\$ 29.63 17.51

 PAIN0091-005 06/01/2023

FULTON COUNTY

Rates Fringes

PAINTER

Brush & Roller, Drywall
 Taping & Finishing,
 Vinyl/Paper Hanging.....\$ 30.00 17.60
 Spray.....\$ 30.50 17.60

 PAIN0460-002 06/01/2023

WHITE COUNTY

Rates Fringes

Painters:

Brush & Roller.....\$ 38.50 28.76
 Drywall Finisher.....\$ 39.30 28.76

 PAIN0469-001 06/01/2023

ADAMS, ALLEN, DEKALB, GRANT, HUNTINGTON, NOBLE, STEUBEN,
 WABASH, WELLLS, and WHITLEY COUNTIES

Rates Fringes

Painters:

Brush, Roller,
 Paperhanger, & Drywall
 Finishing.....\$ 24.05 15.32
 Lead Abatement.....\$ 30.24 15.32
 Spray & Sandblast Pot
 Tenders and Ground
 Personnel.....\$ 22.86 14.30
 Spray, Sandblast, Power
 Tools, Waterblast, & Steam
 Cleaning.....\$ 25.04 15.32

 PAIN0669-001 05/01/2022

BLACKFORD, DELAWARE, FAYETTE, FRANKLIN, HENRY, HOWARD, JAY,
 MADISON, MIAMI, RANDOLPH, RUSH, TIPTON, UNION and WAYNE COUNTIES

	Rates	Fringes
Painters:		
Brush; Roller; Paperhanging; Drywall Finishers.....	\$ 22.70	15.29
Spray/Waterblasting; Sandblasting.....	\$ 23.70	15.29

PAIN1165-010 07/01/2023

FULTON COUNTY

	Rates	Fringes
GLAZIER.....	\$ 31.22	21.57

PAIN1165-013 07/01/2023

ADAMS, ALLEN, BLACKFORD, DEKALB, GRANT, HUNTINGTON, JAY, NOBLE,
STEUBEN, WABASH, WELLS, WHITLEY

	Rates	Fringes
GLAZIER.....	\$ 28.00	17.82

PAIN1165-016 01/01/2023

BARTHOLOMEW, BENTON, BOONE, CARROLL, CASS, CLINTON, DELAWARE,
FOUNTAIN, HAMILTON, HANCOCK, HENDRICKS, HOWARD, JOHNSON,
MADISON, MARION, MIAMI, MONROE, MONTGOMERY, MORGAN, SHELBY,
TIPPECANOE, TIPTON, WARREN, and WHITE COUNTIES

	Rates	Fringes
GLAZIER.....	\$ 31.92	19.43

PLAS0101-002 06/01/2018

FULTON COUNTY

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 28.84	14.48
PLASTERER.....	\$ 26.81	12.40

PLAS0101-003 06/01/2014

ADAMS, ALLEN, DEKALB, HUNTINGTON, NOBLE, STEUBEN, WELLS AND
WHITLEY COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 23.38	11.94
PLASTERER.....	\$ 25.69	11.75

PLAS0692-006 06/01/2016

AREA #46

BARTHOLOMEW, BOONE, HENDRICKS, JOHNSON, MARION, MONROE, MORGAN and SHELBY COUNTIES

	Rates	Fringes
PLASTERER.....	\$ 25.04	13.23

PLAS0692-007 06/01/2017		

AREA #75

MONROE COUNTY

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 25.75	13.50

PLAS0692-009 04/01/2020		

AREA #83

BLACKFORD, DELAWARE, GRANT, HAMILTON (Northern Part), HANCOCK (Northern Part), JAY, MADISON, TIPTON, and WABASH COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 26.00	15.54
PLASTERER.....	\$ 25.49	11.95

PLAS0692-015 06/01/2016		

AREA #121

BENTON, CARROLL, CASS, CLINTON, FOUNTAIN, HOWARD, MIAMI, MONTGOMERY, TIPPECANOE, WARREN, WHITE and VERMILLION (Northern Part) COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 26.10	17.30
PLASTERER.....	\$ 27.71	16.40

PLAS0692-023 06/01/2018		

AREA #532

BOONE, HAMILTON (SOUTH HALF OF COUNTY NORTH TO NEW ROUTE INDIANA #32 INCLUDING NOBLESVILLE); HANCOCK COUNTY (SOUTHERN AND WESTERN PART OF HANCOCK COUNTY, NORTH TO BUT NOT INCLUDING FORTVILLE); HENDRICKS, JOHNSON, MARION and MORGAN COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 26.45	18.11
Slip Form Shift Work.....	\$ 27.45	18.11
Swinging/Suspended Scaffold.	\$ 26.70	18.11

PLAS0821-001 05/01/2019

BARTHOLOMEW AND SHELBY COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 24.58	14.99

PLUM0136-006 04/01/2023

MONROE COUNTY

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 40.82	20.92

PLUM0157-002 07/01/2023

BENTON, CARROLL, CLINTON, FOUNTAIN, MONTGOMERY, TIPPECANOE,
WARREN AND WHITE COUNTIES:

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 40.95	21.65

PLUM0166-001 06/01/2023

ADAMS, ALLEN, BLACKFORD, DE KALB, GRANT, HUNTINGTON, NOBLE,
STEBEN, WABASH, WELLS, and WHITLEY COUNTIES

	Rates	Fringes
Plumber and Steamfitter.....	\$ 40.81	19.41

PLUM0172-002 06/01/2023

CASS and FULTON COUNTIES

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	\$ 39.69	22.71

PLUM0440-002 06/04/2023

BARTHOLOMEW, BOONE, HAMILTON, HANCOCK, HENDRICKS, HOWARD,
JOHNSON AND MARION COUNTIES; MIAMI COUNTY (SOUTH OF A STRAIGHT
LINE WHERE ROUTE 218 ENTERS W. BOUNDARY); MORGAN, SHELBY and
TIPTON COUNTIES

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 43.00	18.89

PLUM0440-003 06/04/2018

DELAWARE, JAY and MADISON COUNTIES

Rates	Fringes
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Plumber and Steamfitter.....\$ 37.67 16.79

 ROOF0023-003 06/01/2023

ALLEN, DEKALB, NOBLE, STEUBEN, and WHITLEY COUNTIES

 Rates Fringes

ROOFER

 COMPOSITION.....\$ 33.55 19.33
 SLATE & TILE.....\$ 35.05 19.33

 ROOF0023-007 06/01/2023

FULTON COUNTY

 Rates Fringes

ROOFER

 COMPOSITION.....\$ 33.05 19.33
 SLATE & TILE.....\$ 35.05 19.33

 ROOF0023-010 06/01/2023

ADAMS, HUNTINGTON, MIAMI, WABASH, and WELLS COUNTIES

 Rates Fringes

ROOFER

 COMPOSITION.....\$ 33.55 19.33
 SLATE & TILE.....\$ 35.05 19.33

 ROOF0119-003 09/01/2022

BARTHOLOMEW, BOONE, HAMILTON, HANCOCK, HENDRICKS, JOHNSON,
 MARION, MONROE, MORGAN and SHELBY COUNTIES

 Rates Fringes

Roofers:.....\$ 28.80 12.79

 ROOF0119-005 09/01/2022

 Rates Fringes

ROOFER.....\$ 28.80 12.79

 SFIN0669-002 04/01/2023

 Rates Fringes

SPRINKLER FITTER.....\$ 43.36 26.71

 SHEE0020-003 07/01/2022

 Rates Fringes

Sheet metal worker (HVAC Duct
 Work).....\$ 33.58 26.25

SHEE0020-004 07/01/2022

BARTHOLOMEW, BOONE, DELAWARE, HAMILTON, HANCOCK, HENDRICKS, JOHNSON, MADISON, MARION, MONROE, MORGAN, SHELBY AND TIPTON COUNTIES

	Rates	Fringes
Sheet metal worker (Including HVAC Duct Work).....	\$ 38.83	23.84

SHEE0020-016 07/01/2022

FULTON COUNTY

	Rates	Fringes
SHEET METAL WORKER.....	\$ 36.71	27.78

SHEE0020-020 07/01/2022

BENTON, CARROLL, CLINTON, FOUNTAIN, MONTGOMERY, TIPPECANOE, WARREN AND WHITE COUNTIES

	Rates	Fringes
Sheet metal worker (Including HVAC Duct Work).....	\$ 37.62	26.46

TEAM0135-001 06/01/2023

BARTHOLOMEW, BENTON, BLACKFORD, CARROLL, CASS, CLINTON, DELAWARE, FOUNTAIN, GRANT, HOWARD, JAY, MADISON, MARION, MIAMI, MONROE, MONTGOMERY, TIPPECANOE, TIPTON, WABASH, WARREN, & WHITE COUNTIES

	Rates	Fringes
TRUCK DRIVER		
GROUP 1.....	\$ 31.54	a
GROUP 2.....	\$ 32.04	a
GROUP 3.....	\$ 32.24	a
GROUP 4.....	\$ 32.39	a
GROUP 5.....	\$ 32.89	a

A: \$36.40 PER DAY & 450.00 PER WEEK.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Single Axle Trucks, seven (7) cu. yds. or less than ten and one-half (10 1/2) tons, dumpsters, scoop-mobiles five (5) cu.yds. and under or less than seven and one-half (7 1/2) tons, mixer trucks three (3) cu.yds. and under, air compressors and welding machines, including those pulled by separate units, batch trucks-wet or dry- 2'"34-E'" batches or less, truck driver helpers, warehousemen, mechanic's helpers, greasers and tiremen, all pick-up trucks and other vehicles. Drivers on dumpsters or similar dumpsters, mounted on four (4) wheel truck rated two (2) cu.yds. or

less, and small pallet type fork-lift operator and drivers on pallet jacks or similar type equipment.

GROUP 2: Drivers on tandem axle eighteen (18) cu.yds. or twenty- four (24) tons gross, six (6) wheel trucks, Koehring or similar dumpsters, tract trucks, Euclids, hug bottom dumps, tournapulls, tounatrailers, tournarockers, or similar equipment when used for transportation purposes under nine (9) cu.yds. or less than thirteen and one-half (13 1/2) tons, tandems and semi-trailer service trucks, mixer trucks over three (3) cu.yds. and including six and one-half (6 1/2) cu.yds., fork lift, four (4) wheel A-frame trucks when used for transportation purposes, four (4) wheel winch trucks, pavement breakers, batch trucks-wet or dry- over 2 up to and including 4-""34-E"" batches two (2) men oil distributors, fork-lift under four (4) ton and vacuum trucks.

GROUP 3: Koehring or similar dumpsters, tract trucks, semi-trailer water trucks, Euclids, hug bottom dumps, tournapulls, tournatrailers, tournarockers, tractor trailers, tandems, Q- frame winch trucks, hydrolift turcks or similar equipment when used for transportation purposes, mixer trucks over six and one- half (6 1/2) cu.yds, batch trucks wet or dry over 4 - ""34-E"" batches single equipment operated by employees withing this Bargaining unit. Six (6) wheel pole trailers and one (1) man oil distributors, fork-lift over four (4) ton and mobile mixers.

GROUP 4: Drivers on heavy equipment over sixteen (16) cu.yds. or twenty-four (24) ton, such as Koehring or similar dumpsters, tract trucks, Euclids, hug bottom dumps, tournapulls, tournarockers or similar equipment when used for transportation purposes, pole trailers over six (6) wheels, water pulls, low-boy trailers tandem axles, quad axle or more no-weight limitation, diesel and/or heavy equipment mechanics.

GROUP 5: Mechanic furnishing his own tools.

TEAM0135-012 04/01/2023

HAMILTON, HANCOCK, HENDRICKS, JOHNSON, MORGAN, AND SHELTYB COUNTIES

	Rates	Fringes
TRUCK DRIVER		
Group 1.....	\$ 31.54	a
Group 2.....	\$ 32.04	a

A: \$36.40 PER DAY & \$450.00 PER WEEK

TRUCK DRIVER CLASSIFICATIONS:

- GROUP 1: Truck Driver Helper
- GROUP 2: Truck Driver on Fork Lifts & Truck Driver on Tandem, Semi, or Tri-axle

* TEAM0364-002 06/01/2023

FULTON COUNTY

	Rates	Fringes
TRUCK DRIVER		
GROUP 1.....	\$ 31.75	A+B
GROUP 2.....	\$ 31.95	A+B
GROUP 3.....	\$ 32.25	A+B
GROUP 4.....	\$ 32.75	A+B

FOOTNOTE:

a. FRINGE BENEFITS: \$422.50 per week

B. HOLIDAYS: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

TRUCK DRIVER CLASSIFICATIONS

- GROUP 1: Pick-up Trucks
- GROUP 2: Single Axle Trucks
- GROUP 3: Tandem, Tri-axle and Fuel Trucks
- GROUP 4: Semi-trailer Trucks

 TEAM0414-001 07/01/2023

ADAMS, ALLEN, DEKALB, HUNTINGTON, NOBLE, STEUBEN, WELLS, AND WHITLEY COUNTIES

	Rates	Fringes
TRUCK DRIVER		
Group 1.....	\$ 37.42	797.88/WK
Group 2.....	\$ 37.61	797.88/WK
Group 3.....	\$ 37.71	797.88/WK
Group 4.....	\$ 37.81	797.88/WK
Group 5.....	\$ 37.91	797.88/WK

TRUCK DRIVER CLASSIFICATIONS:

- GROUP 1: Truck Driver Helper
- GROUP 2: Truck Driver on Fork Lifts
- GROUP 3: Truck Driver on Tandem, Semi, or Tri-axle
- GROUP 4: Truck Driver on Water Trucks and Mechanic
- GROUP 5: Truck Driver Euclid/Earth Movers

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide

employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average

calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator

(See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

EXHIBIT C

DAVIS-BACON ACT PROVISIONS AND FORMS

ATTACHMENT B

REQUIRED CONTRACT PROVISIONS RELATED TO DAVIS-BACON ACT AND RELATED ACTS

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in Section (4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (1)(ii) of this section) and the Davis- Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(A) The Town of Wheatland on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The EPA award official shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Town of Wheatland agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the Town of Wheatland to the State award official. The State award official will transmit the report, to the Administrator of the Wage and Hour Division, Employment Standards

Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the and the Town of Wheatland do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the questions, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The Town of Wheatland shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of

the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the Town of Wheatland, that is, the entity that receives the sub- grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the Town of Wheatland shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the Town of Wheatland for transmission to the State or EPA if requested by EPA, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the Town of Wheatland.

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5(a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3; and

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to the Town of Wheatland.

(4) Apprentices and trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor is or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of

Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the governing federal agency may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Subrecipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

(11) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen and guards shall require or permit any such laborer, mechanic, watchman or guard in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer, mechanic, watchman or guard receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(12) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in the above paragraph (11) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman or guard employed in violation of the clause set forth in the above paragraph (11) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in the above paragraph (11) of this section.

(13) Withholding for unpaid wages and liquidated damages. The Town of Wheatland upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in the above paragraph (12) of this section.

(14) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (11) through (14) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs

(11) through (14) of this section.

(b) In addition to the clauses contained in paragraph (13), above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Town of Wheatland shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers, mechanics, watchmen and guards working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Town of Wheatland shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

[29 CFR 5.5]

ATTACHMENT C

**REQUIRED WAGE/FRINGE BENEFIT
CERTIFICATION**

(a) Every contractor and subcontractor furnishing work on the Project shall complete a Wage/Fringe Benefit Certification on the form approved by the Indiana Finance Authority and submit this certification to the Labor Standards Administrator prior to commencing work on the Project.

(b) The Provider shall require the substance of this provision to be included in all contracts with subcontractors.

Wage/Fringe Benefit Certification
(To be completed by contractor/subcontractor)

COMMUNITY: Town of Wheatland

PROJECT: Drinking Water System Improvements

This is to certify that

plans to use the following classifications of workers on the above referenced project:

From Applicable Wage Decision				Base Wage to be paid by Contractor	Fringe Benefits to be provided by Contractor		Total package to be paid by Contractor
Classification	Base Wage Due	Fringe Benefits Due	Total Package Due		Benefit	Hourly Amount	

Certified by: _____ **Title:** _____ **Date:** _____

(must be certified by contractor)

EXHIBIT D

**SUSPENSION AND DEBARMENT
PROVISION**

(NO TEXT FOR THIS PAGE)

Attachment E

REQUIRED CONTRACT PROVISION RELATED TO SUSPENSION AND DEBARMENT

Contractor shall fully comply with Subpart C of 2 CFR Part 180 and 2 CFR Part 1532, entitled “Responsibilities of Participants Regarding Transactions (Doing Business with Other Persons).” Provider is responsible for ensuring that any lower tier covered transaction as described in Subpart B of 2 CFR Part 180 and 2 CFR Part 1532, entitled “Covered Transactions,” includes a term or condition requiring compliance with Subpart C. Contractor is responsible for further requiring the inclusion of a similar term or condition in any subsequent lower tier covered transactions. Contractor may access the Excluded Parties List System at www.epls.gov. This term and condition supersedes EPA Form 5700-49, “Certification Regarding Debarment, Suspension, and Other Responsibility matters.”

(NO TEXT FOR THIS PAGE)

EXHIBIT E

**GREEN PROJECT RESERVE BID
INSTRUCTION AND FORM**

(NO TEXT FOR THIS PAGE)

ATTACHMENT F

REQUIRED INSTRUCTION RELATED TO GPR COMPONENTS

U.S. EPA Green Project Reserve Program

Certain portions or components of this Project, which are described in the GPR Bid Breakdown form furnished with the Bid Documents, qualify for the U.S. EPA Green Project Reserve (GPR) Program and/or the Sustainability Incentive offered by the Indiana State Revolving Fund (SRF) Loan Program. Bidder shall complete the GPR Bid Breakdown form and submit the completed form with its Bid. This information is required by the U.S. EPA and the Indiana SRF Program and **Bidder's failure to fully and accurately complete the GPR Bid Breakdown form and submit it with its Bid may result in the Bid being rejected as non-responsive.**

ATTACHMENT G

**STATE REVOLVING FUND LOAN PROGRAM
GREEN PROJECT RESERVE (GPR) AND SUSTAINABILITY INCENTIVE GPR BID
BREAKDOWN**

Certain portions or components of this Project, which are described below, qualify for the U.S. EPA Green Project Reserve (GPR) Program and/or the Sustainability Incentive offered by the Indiana State Revolving Fund (SRF) Loan Program.

Each Bidder shall provide the dollar amount that Bidder included in its total Bid for each portion or component, including all labor, materials, and equipment necessary to complete each portion or component of the Project Contract.

Non-distributed costs should be listed as its own line item below or incorporated into the price for each GPR Component/Portion.

- Non-distributed costs are defined as costs that are applied to the overall contract, but not to a specific line item/component (e.g. mobilization, demobilization, site work, bonds, insurance)

This information is required by the U.S. EPA and the Indiana SRF Loan Program and Bidder's failure to fully and accurately complete this form and submit it with its Bid may result in the Bid being rejected as non-responsive.

GPR Component Description	GPR Component Price [to be completed by Bidder]

TOTAL CONSTRUCTION GPR COST: \$ _____

EXHIBIT F

AMERICAN IRON AND STEEL PROVISION AND FORM

ATTACHMENT I

REQUIRED CONTRACT PROVISIONS RELATED TO AMERICAN IRON AND STEEL

The Contractor hereby acknowledges to and for the benefit of the Town of Wheatland (“Owner”) and the Indiana Finance Authority (the “Authority”) that it understands the work, goods and services under this Agreement are being funded with monies made available by the State Revolving Fund Loan Program and such appropriation contains provisions commonly known as “American Iron and Steel” (and as such is supplemented from time to time by federal rules and guidance) that requires all of the iron and steel products used in the project be produced in the United States (“American Iron and Steel Requirements”) including iron and steel products provided by the Contractor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Owner and the Authority, and agrees, that (a) the Contractor has reviewed and understands the American Iron and Steel Requirements, (b) all of the iron and steel products used in the project as provided by the Contractor under this Agreement will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirements and (c) the Contractor will provide any further certification or assurance of compliance with this paragraph as may be requested by the Owner or the Authority. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Owner and the Authority to recover as damages against the Contractor (and the Contractor shall indemnify and hold the Owner and the Authority harmless against) any loss, expense or cost (including without limitation attorney’s fees) incurred by the Owner or the Authority resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the Authority or any damages owed to the Authority by the Owner). While the Contractor has no direct contractual privity with the Authority, as a lender to the Owner for the funding of its project, the Owner and the Contractor agree that the Authority is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the Authority.

ATTACHMENT J

REQUIRED CERTIFICATION FROM CONTRACTOR RELATED TO AMERICAN IRON AND STEEL

CERTIFICATION

I _____, of _____
(Name and Title of Certifying Officer) (Successful Bidder)

hereby certify and agree on behalf of the Successful Bidder as its duly authorized representative (and under penalties of perjury) that the Successful Bidder understands and agrees a material term and consideration applicable to the award and entry into a contract with the Successful Bidder by the _____ related to its _____

(SRF Applicant)

(Project Name)

involves the procurement and provision of work, goods and services under a procurement contract to be entered into with the SRF Applicant is the Successful Bidder's compliance with the provisions of H.R. 3547, "Consolidated Appropriations Act, 2014" commonly known as "American Iron and Steel" provisions as contained therein requiring that all of the iron and steel products used in the Project be produced in the United States ("American Iron and Steel Requirements"). The Successful Bidder hereby represents and warrants to and for the benefit of the SRF Applicant and the Indiana Finance Authority, as a lender to the SRF Applicant for the funding of its Project, and agrees, that

(a) the Successful Bidder has reviewed and understands the American Iron and Steel Requirements,

(b) all of the iron and steel products used in the Project as provided by the Successful Bidder under its agreement related to the Project will be produced in the United States in a manner that complies with the American Iron and Steel Requirements and (c) the procurement contract will include a provision substantially like Attachment I.

I SWEAR OR AFFIRM UNDER THE PENALTIES FOR PERJURY THAT THE ABOVE STATEMENTS ARE TRUE TO THE BEST OF MY KNOWLEDGE.

(Signature)

(Date)

STATE OF _____)
) SS:
COUNTY OF _____)

Before me, a Notary Public in and for said County and State, personally appeared _____, the _____ of _____ who, being first duly sworn, acknowledged the execution of the above and foregoing instrument for and on behalf of said entity.

Dated this ____ day of _____, 2014.

My commission expires:

_____, Notary Public
(Printed)

County of Residence:

EXHIBIT G

DBE PROGRAM REQUIREMENTS AND FORM

INDIANA STATE REVOLVING FUND LOAN PROGRAM DBE PACKET

This packet lists required contract conditions that apply to all Clean Water and Drinking Water State Revolving Fund projects and contains forms that must be used in the procurement process. This packet must be physically included in all bidding and contract documents.

This project is being financed in whole or in part by the Indiana State Revolving Fund Loan Programs. The loan recipient is required to comply with the following federal and state laws, rules and regulations and must ensure that their contractor(s) also comply with these regulations, laws and rules.

1. Title VI of the Civil Rights Act of 1964 (P.L 88-352), the Rehabilitation Act of 1973 (P.L. 93-1123, 87 Stat. 355, 29 U.S.C. Sec. 794), the Older Americans Amendments of 1975 (P.L. 94-135 Sec. 303, 89 Stat. 713, 728, 42 U.S.C. Sec. 6102), and subsequent regulations, ensures access to facilities or programs regardless of race, color, national origin, sex, age or handicap.
2. Executive Orders 11246, as amended by Executive Orders 11375 and 12086 and subsequent regulations. Prohibits employment discrimination on the basis of race, color, religion, sex or national origin. Inclusion of the seven clauses in Section 202 of E. O. 11246 as amended by E. O. 11375 and 12086 are required in all project related contracts and subcontracts over \$10,000.
3. 40 CFR Part 33 Participation by Disadvantaged Business Enterprises in Procurement under Environmental Protection Agency (EPA) Financial Assistance Agreements
4. Executive Orders 11625, 12138 and 12432; 40 CFR part 33; Section 129 of P. L. 100-590 Small Businesses Reauthorization & Amendment Act of 1988; Public Law 102-389 (42 U.S.C. 437d); a 1993 appropriations act ("EPA's 8% statute"); Public Law 101-549, Title X of the Clean Air Acts Amendments of 1990 (42 U.S.C. 7601 note) ("EPA's 10% statute"). Encourages recipients to award construction, supply and professional service contracts to minority and women's business enterprises (MBE/WBE) and small businesses and requires recipients to utilize affirmative steps in procurement.
5. Executive Order 12549 and 40 CFR Part 32, Subparts B and C. Prohibits entering into contracts or sub-contracts with individuals or businesses who are debarred or suspended. Borrowers are required to check the status of all contractors (construction and professional services) and must require contractors to check the status of subcontractors for contracts expected to be equal to or over \$25,000 via this Internet address: www.sam.gov
6. Indiana Code 36-1-12-12, Requires the board to withhold final payment to contractor until the contractor has paid the subcontractors, material suppliers, laborers, or those furnishing services
7. Indiana Code 36-1-12-13.1, requires performance and payments bonds equal to 100% of the contract price if the cost of the public work is estimated to be more than \$200,000.

Equal Employment

Inclusion of these seven clauses (excerpt from Executive Order No. 11246, Section 202 as amended by

Executive Order 11375 and 12086) is required in all CWSRF and DWSRF project related contracts and subcontracts over \$10,000:

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

1. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.
2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.
3. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or worker's representative of the contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The contractor will comply with all provisions of Executive Order No. 11246 of Sept. 24, 1965, and all of the rules, regulations, and relevant orders of the Secretary of Labor.
5. The contractor will furnish all information and reports required by Executive Order No. 11246 of Sept. 24, 1965, and by the rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
6. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of Sept. 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of Sept. 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
7. The contractor will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of Sept. 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a

means of enforcing such provisions including sanctions for noncompliance: *Provided, however,* that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

Disadvantaged Business Enterprises (DBE) Good

Faith Efforts

Borrowers and their prime contractors must follow, document, and maintain documentation of their good faith efforts to meet the MBW/WBE goals as listed below to ensure that Disadvantage Business Enterprises (DBEs) have the opportunity to participate in the project by increasing DBE awareness of procurement efforts and outreach. In order to become a certified DBE under this rule, an eligible entity must submit an application that can be found by visiting: <https://www.in.gov/idoa/mwbe>

The fair share goal of contracts and subcontracts to be awarded to MBEs and WBEs and their participation in the Contractor’s aggregate workforce in each trade on all construction work for the subject project are as follows:

MBEs	<u>7 %</u>
WBEs	<u>5 %</u>

1. Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities; including placing DBEs on solicitation lists and soliciting them whenever they are potential sources.
2. Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitation for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.
3. Consider in the contracting process whether firms competing for large contracts could be subcontracted with DBEs. This will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process. Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.
4. Use the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U. S. Department of Commerce.
5. If the prime contractor awards subcontracts, require the prime contractor to take the steps in numbers 1 through 5 above.

Required Contract Conditions

These conditions must be included in all procurement contracts entered into by the loan recipient for all DWSRF and CWSRF projects:

1. The prime contractor must pay its subcontractor for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the loan recipient.
2. The prime contractor must notify the loan recipient in writing prior to the termination of any DBE subcontractor for convenience by the prime contractor.
3. If a DBE subcontractor fails to complete work under the subcontract for any reason, the prime contractor must employ the six good faith efforts if soliciting a replacement subcontractor.
4. The prime contractor must employ the six good faith efforts even if the prime contractor has achieved its fair share objectives.
5. Each procurement contract signed must include the following term and condition:

“The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR Part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or other legally available remedies.”

U.S. ENVIRONMENTAL PROTECTION AGENCY

CERTIFICATION OF NONSEGREGATED FACILITIES

(Applicable to federally assisted construction contracts and related subcontracts exceeding \$10,000 which are not exempt from the Equal Opportunity clause.)

The federally assisted construction contractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally assisted construction contractor certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term segregated facilities means any waiting rooms, work areas, rest rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or nation origin, because of habit, local custom, or otherwise. The federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certification in his files.

Signature

Date

Name and Title of Signer (Please type)

Firm Name

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

OEE-1 (11/79)

NOTICE TO LABOR UNIONS OR OTHER ORGANIZATIONS OF WORKERS
NONDISCRIMINATION IN EMPLOYMENT

TO: _____
(Name of union or organization of workers)

The undersigned currently holds contract(s) with _____
(Name of Applicant)
involving funds or credit of the U.S. Government or (a) subcontract(s) with a prime contractor holding such contract(s).

You are advised that under the provisions of the above contract(s) or subcontract(s) and in accordance with Executive Order 11246, as amended, dated September 24, 1965, as amended, the undersigned is obliged not to discriminate against any employee or applicant for employment because of race, color, creed, or national origin. This obligation not to discriminate in employment includes, but is not limited to, the following:

HIRING, PLACEMENT, UPGRADING, TRANSFER, OR DEMOTION,
RECRUITMENT, ADVERTISING, OR SOLICITATION FOR
EMPLOYMENT, TRAINING DURING EMPLOYMENT, RATES OF PAY OR
OTHER FORMS OF COMPENSATION, SELECTION FOR TRAINING
INCLUDING APPRENTICESHIP, LAYOFF OR TERMINATION.

This notice is furnished you pursuant to the provisions of the above contract(s) or subcontract(s) and Executive Order 11246, as amended.

Copies of this notice will be posed by the undersigned in conspicuous places available to employees or applicants for employment.

(Contractor or Subcontractor)

(Date)

**Public Works and Indiana Finance Authority
GOOD FAITH EFFORTS WORKSHEET**

BIDDER _____

BID/PROJECT NUMBER _____

CONTRACT GOALS 7% MBE 5% WBE

List the M/WBEs contacted and complete the following information for each. Copies of all communications to and from each vendor should be maintained.*

Company Name and Address	MBE	WBE	Type of Contact	Date of Contact	Date Response Due	Goods Or Services Requested	Result (Include Price Quote)

Indicate **Good Faith Efforts** made to utilize MWBEs. Check and explain all that apply or should be considered. Please provide evidence of the efforts that you want to be considered. A complete description of each criteria may be found in the **Indiana Department of Administration Public Works and State Office Building Commission MWBE Participation Policy**.

MBE and WBE Barrier Assistance	Describe
Advertisement	Describe
Agency Assistance	Describe
Other Criteria	Describe

* Copies of all communication to and from each vendor should also be attached to this Worksheet and submitted to SRF for review.

**Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Performance Form**

This form is intended to capture the DBE¹ subcontractor's² description of work to be performed and the price of the work submitted to the prime contractor. An EPA Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name		Project Name	
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact	
Address			
Telephone No.		Email Address	
Prime Contractor Name		Issuing/Funding Entity:	

Contract Item Number	Description of Work Submitted to the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
DBE Certified By: ___ DOT ___ SBA		Meets/ exceeds EPA certification standards? ___ YES ___ NO ___ Unknown
___ Other: _____		

¹ A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

² Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

**Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Performance Form**

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

Subcontractor Signature	Print Name
Title	Date

The public reporting and recordkeeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

Disadvantaged Business Enterprise (DBE) Program DBE Subcontractor Utilization Form

This form is intended to capture the prime contractor's actual and/or anticipated use of identified certified DBE¹ subcontractors² and the estimated dollar amount of each subcontract. An EPA Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name		Project Name	
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact	
Address			
Telephone No.		Email Address	
Issuing/Funding Entity:			

I have identified potential DBE certified subcontractors	__ YES	__ NO	
If yes, please complete the table below. If no, please explain:			
Subcontractor Name/ Company Name	Company Address/ Phone/ Email	Est. Dollar Amt	Currently DBE Certified?

Continue on back if needed

¹ A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

² Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

**Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Utilization Form**

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

The public reporting and recordkeeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Access to site.
4. Work restrictions.
5. Specification and Drawing conventions.
6. Constraints.
7. Work sequence.

B. Related Requirements:

1. Section 01 50 00 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

- A. Project Identification: Wheatland Wastewater System Improvements Division II – Low Pressure Sewer System.

1. Project Location: Wheatland, Indiana.

- B. Owner: Town of Wheatland, P.O.Box 219, Wheatland, Indiana, 47597.

- C. Engineer: RQAW Corporation, 8770 North St., Suite 110, Fishers, Indiana, 46038.

- D. Engineer's Consultants: Engineer has retained the following design professionals who have prepared designated portions of the Contract Documents:

1. Geotechnical Report: Atlas Technical Consultants LLC, 7988 Centerpoint Dr, Ste. 100, Indianapolis, IN, 46256

2. It is the responsibility of the Contractor to coordinate with the Engineer on all project related items. Engineer will coordinate with Engineer's Consultants as required.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:
 - B. The project includes the installation of a new low pressure sewer system for the Town of Wheatland, IN. This system would eliminate the existing failing septic systems throughout town. The project will include more than 24,000 LFT of low-pressure sewer pipe and approximately 212 grinder pump stations, which will serve a population of roughly 450.
- A. The Work includes:
 1. Furnishing of all labor, material, equipment, supplies, services and other means of construction necessary or proper for performing and completing the Work.
 2. Sole responsibility for adequacy of equipment.
 3. Maintaining the Work area and site in a clean and acceptable manner.
 4. Maintaining existing facilities in service at all times except where specifically provided for otherwise herein.
 5. Protection of finished and unfinished Work.
 6. Repair and restoration of Work damaged during construction.
 7. Furnishing as necessary proper equipment and machinery, of a sufficient capacity, to facilitate the Work and to handle all emergencies normally encountered in Work of this character.
- B. Implied and Normally Required Work: It is the intent of these Specifications to provide the Owner with complete operable systems, subsystems and other items of Work. Any part or item of Work which is reasonably implied or normally required to make each installation satisfactorily and completely operable is deemed to be included in the Work and the Contract Amount. All miscellaneous appurtenances and other items of Work incidental to meeting the intent of these Specifications are included in the Work and the Contract Amount even though these appurtenances may not be specifically called for in these Specifications.
- C. Quality of Work: Regard the apparent silence of the Contract Documents as to any detail, or the apparent omission from them of a detailed description concerning any Work to be done and materials to be furnished as meaning that only the best general

practice is to prevail and that only materials and workmanship of the best quality are to be used. Interpretation of these Specifications will be made upon this basis.

D. Type of Contract:

1. Project will be constructed under a single prime contract.

1.5 ACCESS TO SITE

- A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
1. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, Residents, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
 - c. Do not block or prevent entry to driveways and entrances of adjacent property owners throughout the duration of the project.
- C. Condition of Existing Buildings: Maintain portions of existing buildings at or adjacent to the site affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.
- D. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.6 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work to normal business working hours as described in the Supplementary Conditions.

- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 - 1. Notify Engineer not less than 48 hours in advance of proposed utility interruptions.
 - 2. Obtain Engineer's written permission before proceeding with utility interruptions.

- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 - 1. Notify Engineer not less than 48 hours in advance of proposed disruptive operations.
 - 2. Obtain Engineer's written permission before proceeding with disruptive operations.

1.7 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

- D. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 1. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and as scheduled on Drawings.

1.8 CONSTRAINTS

- A. The Contract Documents are intended to allow the Contractor flexibility in construction of the Work however the following constraints apply:

1. When connecting the new sewer main to homes, maintain sewer services with minimum outages.
 2. Perform Work in such a manner to prevent damage to portions of the existing utility systems. Repair or replace any portions of the systems which are damaged by the Contractor. Any such repairs or replacements shall be performed at no additional cost to the Owner.
 3. The Engineer is the sole judge of when the Contractor's operations are causing interference with the Owner's daily procedures. The Engineer's orders and instructions on alleviating such interferences will be carried out without delay.
 4. Perform the work in strict accordance within the construction limits shown.
 5. **CAUTION:** Asbestos-cement dust is hazardous if inhaled. Take proper precautions at all times when handling and cutting asbestos-cement transite pipe. Dispose of asbestos-cement transite pipe according to OSHA guidelines.
- B. Coordinate in advance with the Owner all interruptions to existing systems and facilities. In the event of a conflict, Contractor will reschedule his operations so that the Work will not conflict with Owner's necessary operations or maintenance.
- C. Perform connections to existing facilities or systems that interfere with the operation of existing facilities or systems as quickly as possible and with as little delay as possible.
- 1.9 WORK SEQUENCE
- A. Coordinate work of all subcontractors.
- B. Engineer has made an attempt at a proposed sequence of construction. Submit for acceptance a detailed sequence of construction with the construction schedule prior to the Work commencing.
- C. Suggested Sequence of Construction:
1. Low Pressure Sewer System
 - a. Connect new sections of low pressure sewer using a phased approach.
 - b. Install soil erosion and sediment controls in sections.
 - c. Construct new low pressure sewer beginning at the most downstream points of the system. With each phase, perform required testing.
 - d. Construct grinder pump stations at each serviced lot.
 - e. Connect laterals to grinder pump stations and new low pressure sewer.
 - f. Complete backfill, final grading and restoration.
 2. At project completion remove all soil erosion and sediment controls.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 STARTING WORK

- A. Start Work within 10 days following the date stated in the Notice to Proceed and execute with such progress as may be required to prevent delay to other contractors or to the general completion of the project. Execute Work at such items and in or on such parts of the project and with such forces, material and equipment, as to complete the Work in the time established by the Contract. At all times, schedule and direct the Work so that it provides an orderly progression to completion within the specified time for completion.

END OF SECTION 01 10 00

SECTION 01 20 00 - CONTRACT ITEMS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The Section includes the Contract Items for the Project.

1.2 CONTRACT ITEM 1 – MOBILIZATION AND DEMOBILIZATION

- A. Description: The Work under this Contract Item includes all work necessary for the movement of personnel and equipment to and from the project site. This shall include the submittal of a Performance Bond, Payment Bond, Maintenance Bond [SC-6.01], Contractor's Insurance for Worker's Compensation [SC-6.03], Contractor's Commercial General Liability [SC-6.03], Automobile Liability [SC-6.03], Excess or Umbrella Liability [SC-6.03], Contractor's Professional Liability [SC-6.03], Owner's Liability Insurance [SC-6.04], and Property Insurance [SC-6.05].
- B. Payment: Payment under Item 1 will be made at a Lump Sum Price.

1.3 CONTRACT ITEM 2 – MAINTENANCE OF TRAFFIC

- A. Description: The Work under this Contract Item includes construction and maintenance of all detours, routing of traffic, and signage necessary to install the sewer system to the lines and slopes shown on the Drawings, and specified herein in addition to all other work required or incidental thereto.
- B. Payment: Payment under Item 2 will be made at a Lump Sum Price.

1.4 CONTRACT ITEM 3 – CONSTRUCTION ENGINEERING

- A. Description: The Work under this Contract Item includes the planning and management of the project complete with all labor, material, and equipment necessary, including contractor's field office/trailer and INDOT Settlement Monitoring Plan for work done in INDOT Right of Way.
- B. Payment: Payment under Item 3 will be made at Lump Sum Price.

1.5 CONTRACT ITEM 4 – EROSION AND SEDIMENT CONTROL

- A. Description: The Work under this Contract Item includes installing erosion and sediment control devices as shown on the Drawings and specified herein complete with all labor, material, and equipment necessary; along with maintaining and repairing/replacing these devices if determined necessary by the Engineer.
- B. Payment: Payment under Item 4 will be made at a Lump Sum Price.

1.6 CONTRACT ITEM 5 – SURFACE RESTORATION

- A. Description: The Work under this Contract Item includes all restoration of grading, soils, asphalt, concrete, pavement markings, and all other items necessary to restore the project sites to their original condition, including but not limited to removal of existing pavements of all types, granular backfill, stone, HMA, and concrete.
- B. Payment: Payment under Item 5 will be made at a Lump Sum Price.

1.7 CONTRACT ITEM 6 – 1-1/4-INCH LOW PRESSURE SEWER DR 11 DIRECTIONALLY DRILLED

- A. Description: The Work under this Contract Item includes clearing and grubbing, excavation, dewatering, removal, and disposal of excavated materials as required, trench and excavation support, rock excavation, potholing, installing the pipe, granular backfill, associated fittings, joint restraints, complete with all labor, material, and equipment necessary to install the low pressure sewer pipe to the lines and slopes shown on the Drawings by the method stated on the drawings when indicated, and specified herein in addition to all other work required or incidental thereto.
- B. Payment: Payment under Item 6 will be made for each linear foot of 1-1/4-inch HDPE DR 11 low pressure sewer installed at the appropriate size and depth.

1.8 CONTRACT ITEM 7 – 2-INCH LOW PRESSURE SEWER DR 11 DIRECTIONALLY DRILLED

- A. Description: The Work under this Contract Item includes clearing and grubbing, excavation, dewatering, removal, and disposal of excavated materials as required, trench and excavation support, rock excavation, potholing, installing the pipe, granular backfill, associated fittings, joint restraints, complete with all labor, material, and equipment necessary to install the low pressure sewer pipe to the lines and slopes shown on the Drawings by the method stated on the drawings when indicated, and specified herein in addition to all other work required or incidental thereto.
- B. Payment: Payment under Item 7 will be made for each linear foot of 2-inch HDPE DR 11 low pressure sewer installed.

- 1.9 CONTRACT ITEM 8 – 3-INCH LOW PRESSURE SEWER DR 11 DIRECTIONALLY DRILLED
- A. Description: The Work under this Contract Item includes clearing and grubbing, excavation, dewatering, removal, and disposal of excavated materials as required, trench and excavation support, rock excavation, lining of existing discharge manhole, potholing, installing the pipe, granular backfill, associated fittings, joint restraints, complete with all labor, material, and equipment necessary to install the low pressure sewer pipe to the lines and slopes shown on the Drawings by the method stated on the drawings when indicated, and specified herein in addition to all other work required or incidental thereto.
- B. Payment: Payment under Item 8 will be made for each linear foot of 3-inch HDPE DR 11 low pressure sewer installed.
- 1.10 CONTRACT ITEM 9 – 4-INCH LOW PRESSURE SEWER DR 11 DIRECTIONALLY DRILLED
- A. Description: The Work under this Contract Item includes clearing and grubbing, excavation, dewatering, removal, and disposal of excavated materials as required, trench and excavation support, rock excavation, potholing, installing the pipe, granular backfill, associated fittings, joint restraints, complete with all labor, material, and equipment necessary to install the low pressure sewer pipe to the lines and slopes shown on the Drawings by the method stated on the drawings when indicated, and specified herein in addition to all other work required or incidental thereto.
- B. Payment: Payment under Item 9 will be made for each linear foot of 4-inch HDPE DR 11 low pressure sewer installed.
- 1.11 CONTRACT ITEM 10 – 8-INCH STEEL CASING BY JACK AND BORE
- A. Description: The Work under this Contract Item includes all work necessary to install steel casing where indicated on the Drawings including all labor, material, and equipment as necessary for complete installation.
- B. Payment: Payment under Item 10 will be made for each linear foot of steel casing installed.
- 1.12 CONTRACT ITEM 11 – 6-INCH CASING PIPE FOR LOW PRESSURE SEWER, HDPE DR 11, TRENCHLESS
- A. Description: The Work under this Contract Item includes all work necessary to install 6-inch HDPE DR 11 casing where indicated on the Drawings including all labor, material, and equipment as necessary for complete installation.
- Payment: Payment under Item 11 will be made for each linear foot of HDPE casing installed at the appropriate size.

1.13 CONTRACT ITEM 12 – 8-INCH CASING PIPE FOR LOW PRESSURE SEWER, HDPE DR 11, TRENCHLESS

- B. Description: The Work under this Contract Item includes all work necessary to install 8-inch HDPE DR 11 casing where indicated on the Drawings including all labor, material, and equipment as necessary for complete installation.

Payment: Payment under Item 12 will be made for each linear foot of HDPE casing installed at the appropriate size.

1.14 CONTRACT ITEM 13 – FORCE MAIN LATERAL SERVICE CONNECTIONS

- A. Description: The Work under this Contract Item includes consulting with each homeowner on the Sanitary Lateral Schedule in the Drawings regarding existing septic tank location, locating existing utilities on the parcel, determining the alignment for the sanitary lateral service connection, and installing 1.25-inch DR 11 PVC pipe for the sanitary lateral to connect from the grinder pump station unit to the low-pressure sewer main line. Relocation or replacement of existing utilities or above-ground features, such as mailboxes, fencing, or sheds, as a result of this Work will be included in this item.

- B. Payment: Payment under Item 13 will be made for each service connection per the Sanitary Lateral Schedule in the drawings.

1.15 CONTRACT ITEM 14 – GRAVITY LATERAL SERVICE CONNECTIONS

- C. Description: The Work under this Contract Item includes consulting with each homeowner on the Sanitary Lateral Schedule in the Drawings regarding existing septic tank location, locating existing utilities on the parcel, determining the alignment for the sanitary lateral service connection, and installing 4-inch schedule 40 PVC pipe for the sanitary lateral to connect from the home's sanitary discharge point to the grinder pump station. Relocation or replacement of existing utilities or above-ground features, such as mailboxes, fencing, or sheds, as a result of this Work will be included in this item.

- C. Payment: Payment under Item 14 will be made for each service connection per the Sanitary Lateral Schedule in the drawings.

1.15 CONTRACT ITEM 15 – TERMINAL FLUSHING AND FLUSHING CONNECTIONS

- A. Description: The Work under this Contract Item includes furnishing and installing all work necessary for the flushing connections, fittings and appurtenances to complete both terminal flushing connections and flushing connections as shown on the drawings, specified herein. Work for this item includes the following: pavement removal, excavation, disposal of excess excavated material, base stabilization, aggregate bedding, dewatering, sheeting, riser rings. Casting frames and covers, externals wraps and seals, valves, fittings, connections to pressure sewer inside or outside of structure, supporting and bracing pipes and fittings and valves in manhole, termination of tracing wires ins structures and valve boxes, granular backfill material, placing and compacting backfill, testing, and casting adjustments. Relocation or replacement of existing utilities or above-ground features, such as mailboxes, fencing, or sheds, as a result of this Work will be included in this item.
- B. Payment: Payment under Item 15 will be made for each terminal flushing connection and flushing connection including valves, fittings, and appurtenances, installed in accordance, with the drawings, specified as approved by the engineer.

1.16 CONTRACT ITEM 16 - 1.25-INCH CLEANOUT

- A. Description: The Work under this Contract Item includes all costs to furnish labor, materials, tools, and equipment to install this fitting as shown in the drawings. The work includes, but is not limited to, trench excavation, pavement removal and disposal if necessary, dewatering, furnishing and placement of bedding, installation of cleanout, connection of low pressure sewer lateral to cleanout, connection of sanitary lateral to cleanout, placement of required backfill, compaction of bedding and backfill, utility verification, disposal of excess excavated material, temporary sheeting and shoring, and marking stake. Relocation or replacement of existing utilities or above-ground features, such as mailboxes, fencing, or sheds, as a result of this Work will be included in this item.
- B. Payment: Payment under Item 16 will be made for each cleanout installed as indicated on the drawings.

1.19 CONTRACT ITEM 17 – 2-INCH BILATERAL ISOLATION VALVE

- A. Description: The Work under this Contract Item includes all work necessary to install and test a 2-inch bilateral isolation valve. Work for this item includes pavement removal, excavation, disposal of excess excavated material, base stabilization, aggregate bedding, dewatering, temporary sheeting and shoring, connections to pressure sewer, valve boxes, valve box extensions and centering rings, termination of tracing wires in valve boxes, testing, and valve box adjustments. Relocation or replacement of existing utilities or above-ground features, such as mailboxes, fencing, or sheds, as a result of this Work will be included in this item.

- B. Payment: Payment under Item 17 will be made for each 2-inch bilateral isolation valve, including valve boxes, installed in accordance with the drawings, as specified herein.

1.20 CONTRACT ITEM 18 – 3-INCH BILATERAL ISOLATION VALVE

- A. Description: The Work under this Contract Item includes all work necessary to install and test a 3-inch bilateral isolation valve. Work for this item includes pavement removal, excavation, disposal of excess excavated material, base stabilization, aggregate bedding, dewatering, temporary sheeting and shoring, connections to pressure sewer, valve boxes, valve box extensions and centering rings, termination of tracing wires in valve boxes, testing, and valve box adjustments. Relocation or replacement of existing utilities or above-ground features, such as mailboxes, fencing, or sheds, as a result of this Work will be included in this item.
- B. Payment: Payment under Item 18 will be made for each 3-inch bilateral isolation valve, including valve boxes, installed in accordance with the drawings, as specified herein.

1.21 CONTRACT ITEM 19 – 4-INCH BILATERAL ISOLATION VALVE

- A. Description: The Work under this Contract Item includes all work necessary to install and test a 4-inch bilateral isolation valve. Work for this item includes pavement removal, excavation, disposal of excess excavated material, base stabilization, aggregate bedding, dewatering, temporary sheeting and shoring, connections to pressure sewer, valve boxes, valve box extensions and centering rings, termination of tracing wires in valve boxes, testing, and valve box adjustments. Relocation or replacement of existing utilities or above-ground features, such as mailboxes, fencing, or sheds, as a result of this Work will be included in this item.
- B. Payment: Payment under Item 19 will be made for each 4-inch bilateral isolation valve, including valve boxes, installed in accordance with the drawings, as specified herein.

1.22 CONTRACT ITEM 20 – 2-INCH AIR RELEASE VALVE STATION

- A. Description: The Work under this Contract Item includes all work necessary to install and test a 2-inch air release valve. Work for this item includes pavement removal, excavation, disposal of excess excavated material, base stabilization, aggregate bedding, dewatering, temporary sheeting and shoring, connections to pressure sewer, valve boxes, valve box extensions and centering rings, termination of tracing wires in valve boxes, testing, and any other work as in accordance with the drawings and specifications. Relocation or replacement of existing utilities or above-ground features, such as mailboxes, fencing, or sheds, as a result of this Work will be included in this item.

- B. Payment: Payment under Item 20 will be made for each 2-inch air release valve station installed in accordance with the drawings, as specified herein.

1.23 CONTRACT ITEM 21 – SENTRY PROTECT SIMPLEX PACKAGE PANEL

- A. Description: The Work under this Contract Item includes all work necessary to install and a Sentry Protect Simplex Package Panel. Work for this item includes excavation, disposal of excess excavated material, base stabilization, placement of aggregate bedding and compaction, dewatering, installation of panel pedestal, bitumastic coating, installation of panel, installation of electrical conduit and conductors on pedestal, connection of supply side electrical, connection of grinder pump electrical lead/controls, installation of conduit stub for tracer wire, termination of tracing wires in conduit stub, furnishing and placement of required backfill, compaction of bedding and backfill, utility verification, disposing of excess excavated material, temporary sheet, shoring and bracing, and protection of existing utilities and structures. Relocation or replacement of existing utilities or above-ground features, such as mailboxes, fencing, or sheds, as a result of this Work will be included in this item.
- B. Payment: Payment under Item 21 will be made for each Sentry Protect Simplex Package Panel installed in accordance with the drawings, specified as specified herein.

1.24 CONTRACT ITEM 22 – ELECTRICAL SETUP FOR GRINDER PUMP STATION

- A. Description: The Work under this Contract Item includes all work necessary to install the electrical connections for a single grinder pump station. Work for this item includes, but is not limited to, all materials and labor and permits needed to complete the electrical connections as shown on the Drawings. This shall include connecting to the residence electrical meter (loadside), and power from the meter connection to the pump control panel.
- B. Payment: Payment under Item 22 will be made for each grinder pump station connected to the residence electrical supply.

1.25 CONTRACT ITEM 23 – GRINDER PUMP STATION

- A. Description: The Work under this Contract Item includes all work necessary to install the number of complete grinder pump stations installed as shown. Work for this item includes, but is not limited to, excavation, pavement removal and disposal if necessary, dewatering, furnish and placement of bedding, ballast, concrete ballast, grinder pump station assembly and installation, installation of inlet lateral stubs and fittings, placement of required backfill, compaction of bedding and backfill, utility verification, disposal of excess excavated material, testing and startup of equipment, temporary sheeting, shoring and bracing, and protection of existing utilities on site.
- B. Payment: Payment under Item 23 will be made for each grinder pump station installed in accordance with the drawings and specifications.

- 1.26 CONTRACT ITEM 24 – CURB STOP KIT, STAINLESS STEEL, 1-1/4" COM. FITTINGS DR 11 (IPS), FIELD ASSEMBLY
- A. Description: The Work under this Contract Item includes all work necessary to install curb stop kits as shown. Work for this item includes, but is not limited to, excavation, placement removal and disposal if necessary, dewatering, furnish and placement of bedding, valves, fittings, connection of valves to pressure sewer lateral, furnish and placement of required backfill, compacting of bedding and backfill, utility verification, disposal of excavated material, temporary sheeting, shoring and bracing, and protection of existing utilities on site.
- B. Payment: Payment under Item 24 will be made for each curb stop kit installed in accordance with the drawings and specifications.
- 1.27 CONTRACT ITEM 25 – CURB BOX ASSEMBLY 42-66", ARCH STYLE
- A. Description: The Work under this Contract Item includes all work necessary to install curb box assembly 42-66", arch style as shown. Work for this item includes, but is not limited to, installing curb boxes, valve extension stems and centering rings, and connection and termination of tracing wires in curb boxes.
- B. Payment: Payment under Item 25 will be made for each curb box assembly installed in accordance with the drawings and specifications.
- 1.28 CONTRACT ITEM 26 - MANDATORY BID ALTERNATIVE NO. 1 – UPGRADE TO SENTRY ADVISOR PACKAGE PANEL INSTEAD OF SENTRY PROTECT SIMPLEX PACKAGE PANEL FOR GRINDER PUMP STATION CONTROL PANEL
- A. Description: The Work under this Contract Item includes all work necessary to install and a Sentry Advisor Package. Work for this item includes excavation, disposal of excess excavated material, base stabilization, placement of aggregate bedding and compaction, dewatering, installation of panel pedestal, bitumastic coating, installation of panel, installation of electrical conduit and conductors on pedestal, connection of supply side electrical, connection of grinder pump electrical lead/controls, installation of conduit stub for tracer wire, termination of tracing wires in conduit stub, furnishing and placement of required backfill, compaction of bedding and backfill, utility verification, disposing of excess excavated material, temporary sheet, shoring and bracing, and protection of existing utilities and structures. Relocation or replacement of existing utilities or above-ground features, such as mailboxes, fencing, or sheds, as a result of this Work will be included in this item.
- B. Payment: Payment under Item 26 will be made for each Sentry Advisor Package Panel installed in accordance with the drawings, specified as specified herein.

END OF SECTION 01 20 00

SECTION 01 29 00 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.3 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values to Engineer in accordance with the General Conditions.
 - 3. Identify site mobilization, bonds and insurance.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Engineer.
 - c. Engineer's Project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 - 2. Arrange schedule of values consistent with format of EJCDC Document C-620.
 - 3. Arrange the schedule of values in tabular form, with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.

- b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.
 - 1) Submittals.
 - 2) Labor.
 - 3) Materials.
 - 4) Equipment.
 - 5) Start-up/Testing.
4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports.
5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
- a. Differentiate between items stored on-site and items stored off-site.
6. Overhead Costs: Include total cost and proportionate share of general overhead and profit for each line item.
7. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner.
- B. Payment Application Times: Submit draft Application for Payment to Engineer by the second Tuesday of the month. The period covered by each Application for Payment is one month, ending on the Friday prior to the second Tuesday of each month. Application for Payment must be agreed to and approved on the Friday before the third Tuesday of the month for payment at the monthly Town Council Meeting.
- C. Application for Payment Forms: Use EJCDC Document C-620 as form for Applications for Payment.

- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Engineer will return incomplete applications without action.
1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- E. Stored Materials: Do not include an Application for Payment for materials or equipment purchased or fabricated and stored, but not yet installed. Pay will be based on installed units.
- F. Transmittal: Submit four signed and notarized original copies of each Application for Payment to Engineer by a method ensuring receipt. Include waivers of lien and similar attachments with each copy.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. Waivers of Lien: With each Application for Payment, except for the first, submit waivers of lien from entities lawfully entitled to a lien.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Products list (preliminary if not final).
 5. Submittal schedule (preliminary if not final).

6. Copies of building permits.
 7. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 8. Initial progress report.
 9. Report of preconstruction conference.
- I. Application for Payment at Substantial Completion: After Engineer issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. Indiana State Form 34951
 5. Evidence that claims have been settled.
 6. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 7. Final liquidated damages settlement statement.
- K. Record Drawings: Keep all record drawings current. Recommendation for payment of pay application is subject to Engineer's review and confirmation that all record drawings are up to date.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00

SECTION 01 31 19 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 PRECONSTRUCTION CONFERENCE

- A. The Engineer will schedule meeting after Notice of Award.
- B. Attendance Required: Owner, Engineer, Contractor, and Subcontractors.
- C. Agenda:
 - 1. Execution of Owner-Contractor Agreements.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of schedule of values and progress schedule.
 - 5. Designation of personnel representing Owner, Engineer, and Contractor.
 - 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - 7. Use of premises by Owner and Contractor.
 - 8. Owner's requirements.
 - 9. Construction facilities and controls.
 - 10. Temporary utilities.
 - 11. Survey.
 - 12. Security and housekeeping procedures.
 - 13. Procedures for testing.
 - 14. Procedures for maintaining record documents.
 - 15. Requirements for bringing new sewers into service.
 - 16. Inspection and acceptance of equipment put into service during construction period.
- D. The Engineer will record minutes and distribute copies to participants and those affected by decisions made.

1.2 PROGRESS MEETINGS

- A. The Contractor will schedule and administer meetings throughout progress of the Work at maximum monthly intervals.
- B. The Contractor will arrange and preside at meetings. For these meetings, the contractor will create an agenda and provide participants with a copy.

- C. Attendance Required: Job superintendents, major subcontractors and suppliers, Owner, and Engineer, as appropriate to agenda topics for each meeting.

- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Progress to date.
 - 3. Anticipated progress until next progress meeting.
 - 4. Identification of problems impeding planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Maintenance of progress schedule.
 - 7. Corrective measures to regain projected schedules.
 - 8. Review of Requests for Information (RFI's).
 - 9. Review of Requests for Proposal (RFP's).
 - 10. Review of Change Orders (CO's).
 - 11. Review of Pay Applications.
 - 12. Owner discussions, concerns, and comments.
 - 13. Engineer discussions, concerns, and comments.
 - 14. Other business relating to Work.

- E. The Contractor will record minutes and distribute copies to participants and those affected by decisions made.
 - 1. Distribute meeting notes to attendees within seven calendar days after each meeting and allow three days for review of meeting notes by all parties. After the three-day review period, re-distribute notes as required and prior to the next progress meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 19

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submittals.

B. Related Requirements:

1. Section 01 29 00 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Section 01 40 00 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
3. Section 01 77 00 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
4. Section 01 78 23 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
5. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
6. Section 01 79 00 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Engineer's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Engineer's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.4 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule within 5 calendar days from Notice to Proceed. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Engineer and additional time for handling and reviewing submittals required by those corrections.
1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 90 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
 4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal Category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Engineer's final release or approval.
 - g. Scheduled dates for purchasing.
 - h. Scheduled date of fabrication.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.5 SUBMITTAL FORMATS

- A. Submittal Information: Include the following information in each submittal:
1. Project name.
 2. Date.
 3. Name of Engineer.
 4. Name of Contractor.
 5. Name of firm or entity that prepared submittal.
 6. Names of subcontractor, manufacturer, and supplier.
 7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.

8. Category and type of submittal.
 9. Submittal purpose and description.
 10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
 11. Drawing number and detail references, as appropriate.
 12. Indication of full or partial submittal.
 13. Location(s) where product is to be installed, as appropriate.
 14. Other necessary identification.
 15. Remarks.
 16. Signature of transmitter.
- B. Options: Identify options requiring selection by Engineer.
- C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Engineer on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.
- D. Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.
1. Place a permanent label or title block on each submittal item for identification; include name of firm or entity that prepared submittal.
 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.
 3. Transmittal for Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using facsimile of sample form included in Project Manual transmittal form.

1.6 SUBMITTAL PROCEDURES

- A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
1. ShareFile/FTP Website: Prepare submittals in PDF form, and upload to a ShareFile or FTP website. Enter required data in web-based software site to fully identify submittal.
 - a. Engineer will review and upload an annotated file to the web-based system.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as indicated in the General and Supplementary Conditions. Time for review shall commence on Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
- D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked with approval notation from Engineer's action stamp.
- E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Engineer's action stamp.

1.7 SUBMITTAL REQUIREMENTS

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. Mark each copy of each submittal to show which products and options are specific to the project.
 2. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.

- d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
3. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams that show factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. Paper Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 24 by 36 inches.
 3. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 4. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.
 - f. Specification paragraph number and generic name of each item.
 5. Paper Transmittal: Include paper transmittal including complete submittal information indicated. Upload a copy of the transmittal to the ShareFile or FTP website for record keeping purposes.

6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 7. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit three full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Engineer will return submittal with options selected.
 8. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three sets of Samples. Engineer will retain two Sample sets; remainder will be returned with Engineer comments.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- C. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.

4. Location within room or space.
- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, reference contact information, and other information specified.
- E. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.
- F. Certificates:
1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
 2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
 4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
 5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- G. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified. Test and Research Reports:
1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
 2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
 3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - a. Name of evaluation organization.
 - b. Date of evaluation.
 - c. Time period when report is in effect.
 - d. Product and manufacturers' names.
 - e. Description of product.
 - f. Test procedures and results.
 - g. Limitations of use.

1.8 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Engineer.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.9 CONTRACTOR'S REVIEW

- A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.

- B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
1. Engineer will not review submittals received from Contractor that do not have Contractor's review and approval.

1.10 ENGINEER'S REVIEW

- A. Action Submittals: Engineer will review each submittal, indicate corrections or revisions required and return it.
1. PDF Submittals: Engineer will indicate, via markup on each submittal, the appropriate action as follows:
 - a. No Exceptions Taken:
 - 1) Where submittals are stamped "No Exceptions Taken". Work covered by submittal may proceed PROVIDED THE WORK COMPLIES WITH THE CONTRACT DOCUMENTS. Acceptance of Work will depend upon that compliance.
 - b. Make Corrections Noted:
 - 1) When submittals are stamped "Make Corrections Noted". Work covered by submittal may proceed PROVIDED IT COMPLIES WITH ENGINEER'S NOTATIONS AND CORRECTIONS ON SUBMITTAL AND WITH THE CONTRACT DOCUMENTS. Acceptance of Work will depend on that compliance.
 - c. Submit Specified Item:
 - 1) When submittals are stamped "Submit Specified Item" Contractor may proceed with Work covered by the submittal, except for the requested item, PROVIDED THE WORK COMPLIES WITH THE CONTRACT DOCUMENTS. Acceptance of Work will depend upon that compliance.
 - 2) Submit the requested item in accordance with Paragraph 1.7 of this Section.
 - d. Revise and Resubmit:
 - 1) When submittals are stamped "Revise and Resubmit" do not proceed with Work covered by submittal. Do not permit Work covered by submittal to use at Project site or elsewhere where Work is in progress.
 - 2) Revise submittal in accordance with Engineer's notations.

e. Rejected:

- 1) When submittals are stamped "Rejected" do not proceed with Work covered by submittal. Do not permit Work covered by submittal to be used at Project site or elsewhere where Work is in progress.
- 2) Provide a new submittal that meets the intent of the Specifications and in accordance with Engineer's notations.

B. Informational Submittals

1. When Informational Submittals conform to the format requirements in the Contract Documents, Engineer will acknowledge such submittals via a response transmittal.
 2. If an Information Submittal does not conform to the format requirements of the Contract Documents, Engineer will return the submittal with comments or questions. Do not proceed with Work covered by the submittal and do not permit Work covered by the submittal to be used at Project site or elsewhere where Work is in progress. Resubmit the Information Submittal until the Engineer acknowledges that the submittal conforms to the format required.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval in writing from Engineer.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Engineer will return without review submittals received from sources other than Contractor.
- F. Submittals not required by the Contract Documents will be returned by Engineer without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SUBMITTAL NUMBERING

- A. Number all submittals as follows:

(A) - (B)

Where:

(A) = Specification Section Number

(B) = Consecutive submittal number for the Specification Section Number listed in (A),

with an alphabetic suffix indicating the sequential version of the submittal.

Examples:

01 33 00-001A indicates the initial version of submittal number 001 for Specification Section 01 33 00.

01 33 00-001B indicates the second version of submittal number 001 for Specification Section 01 33 00.

01 33 00-002A indicates the initial version of submittal number 002 for Specification Section 01 33 00.

3.2 REPETITIVE REVIEWS

- A. Repetitive Reviews: Submittals will be reviewed no more than twice at the Owner's expense. All subsequent reviews will be performed at times convenient to the Engineer based on the Engineer's then prevailing rates including all direct and indirect costs and fees. Contractor is not entitled to an increase in the Guaranteed Maximum Price for reimbursing Owner for all such costs and fees invoiced for third and subsequent submittals.

3.3 EXAMPLE FORMAT FOR CONTRACTOR'S APPROVAL AND CERTIFICATION STAMP

- A. An example format for the Contractor's approval and certification stamp is as follows:

CONTRACTOR'S NAME
_____ Approved and Certified to comply with the Contract Documents
_____ Approved and Certified to comply with Contract Documents, except for variations specifically noted on the Submittal Transmittal Form and the associated documents.
PRINTED NAME: _____
TITLE: _____
SIGNATURE: _____
DATE: _____

3.4 CONTRACTOR'S SUBMITTAL TRANSMITTAL FORM

- A. The format for the Contractor's Submittal Transmittal form is as follows:

CONTRACTOR'S NAME
SUBMITTAL TRANSMITTAL FORM

Wheatland Wastewater System Improvements Division II – Low Pressure Sewer System

TO: _____ DATE: _____
 ATTN: _____ SITE: _____
 FROM: _____ SPEC. REF. NO.: _____
 DWG REF. NO.: _____
 SUBMITTAL NO.: _____

1. The following documents are forwarded for your review:

No. of Copies	Document Originator	Description	Document No.	Date

2. Will item submitted for review fit in space provided in the Contract Document? Yes No Not Applicable
3. Has work indicated in this submittal been coordinated with all trades? Yes No Not Applicable
4. Has the Contractor approved submittal and affixed completed approval and certification stamp? Yes No
5. Contractor's description and justification for variations from the Contract Documents. (Use additional pages, if necessary)

6. Remarks: _____

Printed Name: _____

Signature: _____

3.5 SUBMITTAL REQUIREMENTS

- A. The schedule of submittals below is to be used only as a guide and is not guaranteed as a complete listing. Furnish submittals for any items of material or equipment required by the Technical Specifications.

SECTION	ITEM DESCRIPTION	INFORMATIONAL SUBMITTAL	SHOP DRAWING PRODUCT DATA / LAYOUT DRAWINGS	INSTALLATION INSTRUCTIONS	DESIGN CALCULATIONS AND / OR PE APPROVALS	O&M MANUAL	START-UP REPORT	MANUFACTURERS WARRANTY / CERTIFICATION OF INSTALLATION	SAMPLES AND/OR CERTIFIED TEST REPORTS	DAYS DUE AFTER NOTICE TO PROCEED
01 20 00	INDOT Settlement Monitoring Plan – SR 550 ROW	X	X		X					
01 33 00	Submittal Procedures – Submittal Schedule	X								5
01 40 00	Quality Requirements	X								
01 50 00	Temporary Facilities and Controls	X								
01 60 00	Product Requirements	X								
01 77 00	Closeout Procedures	X	X							
01 78 23	Operation and Maintenance Data	X								
01 78 39	Project Record Documents	X								
31 23 23	Fill	X						X		
31 25 00	Erosion and Sedimentation Controls		X	X						
33 01 30.14	Low Pressure Sewer and Grinder Pump Testing							X		
33 05 07.13	Utility Directional Drilling	X	X	X						

SECTION	ITEM DESCRIPTION	INFORMATIONAL SUBMITTAL	SHOP DRAWING PRODUCT DATA / LAYOUT DRAWINGS	INSTALLATION INSTRUCTIONS	DESIGN CALCULATIONS AND / OR PE APPROVALS	O&M MANUAL	START-UP REPORT	MANUFACTURERS WARRANTY / CERTIFICATION OF INSTALLATION	SAMPLES AND/OR CERTIFIED TEST REPORTS	DAYS DUE AFTER NOTICE TO PROCEED
33 05 13	Grinder Pump Station Unit	X	X	X	X	X	X	X	X	
33 32 21	Combination Air Release Valve Stations	X	X	X			X	X	X	
33 05 23	Jacking, Auguring and Mining	X	X	X						
33 31 13	Low Pressure Utility Sewerage	X	X	X						

END OF SECTION 01 33 00

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and quality-control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.3 DEFINITIONS

- A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- B. Field Quality-Control Tests: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

- D. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
 - E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
 - F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
 - G. Source Quality-Control Tests: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.
 - H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
 - I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
 - J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Engineer.
- 1.4 DELEGATED-DESIGN SERVICES
- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Engineer.

1.5 CONFLICTING REQUIREMENTS

- A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Engineer for direction before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Engineer for a decision before proceeding.

1.6 INFORMATIONAL SUBMITTALS

- A. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification section number and title.
 - 2. Entity responsible for performing tests and inspections.
 - 3. Description of test and inspection.
 - 4. Identification of applicable standards.
 - 5. Identification of test and inspection methods.
 - 6. Number of tests and inspections required.
 - 7. Time schedule or time span for tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.
- C. Reports: Prepare and submit certified written reports and documents as specified.
- D. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.7 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

1.8 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

- F. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1.9 QUALITY CONTROL

- A. Contractor Responsibilities: Tests and inspections are contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the work complies with requirements.
 - 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of contractor by authorities having jurisdiction, whether specified or not.
 - 2. Engage a qualified testing agency to perform quality-control services.
 - 3. Notify testing agencies at least 48 hours in advance of time when work that requires testing or inspection will be performed.
 - 4. Where quality-control services are indicated as contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 - 5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 - 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- B. Field and Laboratory Tests: Provide personnel to perform the following periodic observation and associated services:
 - 1. Soils: Observe and test excavations, placement, and compaction of soils. Determine suitability of excavated material. Observe subgrade soils and foundations.
 - 2. Concrete: Observe forms and reinforcement; observe concrete placement; perform and facilitate air entrainment and slump tests, and concrete cylinder preparation.
 - 3. Asphalt: Observe and test placement and compaction of asphalt. Observe subgrade soils to determine suitability for placement.
 - 4. Provide at least a 24-hour notice prior to when specified testing is required. Provide labor and materials, and necessary facilities at the site as required by the Engineer and the testing laboratory.
- C. Retesting/Reinspecting: Retest and reinspect construction that replaced work that failed to comply with the Contract Documents. Costs for retesting or reinspecting the work shall be incurred by the Contractor at no expense to the Owner.

- D. Testing Agency Responsibilities: Cooperate with Engineer and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Engineer and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform duties of Contractor.
- E. Associated Contractor Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Security and protection for samples and for testing and inspection equipment at Project site.
- F. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.10 COSTS OF INSPECTION

- A. Contractor's Obligation: Include in the Contract Price, the cost of all shop and field tests of materials and equipment specifically called for in the Contract Documents. The Owner may perform tests on any material furnished under this Contract at any time during the Contract. If tests performed by the Owner result in failure or rejection for noncompliance, reimburse the Owner for expenditures incurred in making such tests. Tests performed by the Owner shall prevail in determining compliance with Contract requirements.
- B. Reimbursements to Owner:

1. Materials and equipment submitted by the Contractor as the equivalent to those specifically named in the Contract may be tested by the Owner for compliance. Reimburse the Owner for expenditures incurred in making such tests on materials and equipment which are rejected for noncompliance.

1.11 ACCEPTANCE TESTS

- A. Preliminary Field Tests: As soon as conditions permit, furnish all labor and materials and services to perform preliminary field tests of all equipment provided under this Contract. If the preliminary field tests disclose that any equipment furnished and installed under this Contract does not meet the requirements of the Contract Documents, make all changes, adjustments and replacements required prior to the acceptance tests.
- B. Final Field Tests: Upon completion of the Work and prior to final payment, subject all equipment, piping and appliances installed under this Contract to specified acceptance tests to demonstrate compliance with the Contract Documents.
 1. Furnish all labor, fuel, energy, water and other materials, equipment, instruments, and services necessary for all acceptance tests.
 2. Conduct field tests in the presence of the Engineer. Perform the field tests to demonstrate that under all conditions of operation each equipment item:
 - a. Has not been damaged by transportation or installation.
 - b. Has been properly installed.
 - c. Has been properly lubricated.
 - d. Has no electrical or mechanical defects.
 - e. Is in proper alignment.
 - f. Has been properly connected.
 - g. Is free of overheating of any parts.
 - h. Is free of all objectionable vibration.
 - i. Is free of overloading of any parts.
 - j. Operates as intended.
- C. Certificate of Compliance: Submit a notarized Certificate of Compliance for each equipment item. Provide Certificates in the form of a letter stating the following:
 1. Manufacturer has performed all required tests.
 2. Materials to be supplied meet all test requirements.
 3. Tests were performed not more than one year prior to submittal of the certificate.
 4. Materials and equipment subjected to the tests are of the same quality, manufacture and make as those specified.
 5. Identification of the materials.

- D. Failure of Tests: If the acceptance tests reveal defects in material or equipment, or if the material or equipment in any way fails to comply with the requirements of the Contract Documents, then promptly correct such deficiencies. Failure or refusal to correct the deficiencies, or if the improved materials or equipment, when tested again, fail to meet the guarantees or specified requirements, the Owner, notwithstanding its partial payment for work and materials or equipment, may reject said materials or equipment and may order the Contractor to remove the defective work from the site at no addition to the Contract Price, and replace it with material or equipment which meets the Contract Documents.

1.12 FAILURE TO COMPLY WITH CONTRACT

- A. Unacceptable materials: If it is ascertained by testing or inspection that the material or equipment does not comply with the Contract, do not deliver said material or equipment, or if delivered remove it promptly from the site or from the Work and replace it with acceptable material without additional cost to the Owner. Fulfill all obligations under the terms and conditions of the Contract even if the Owner or the Resident Project Representative fail to ascertain noncompliance or notify the Contractor of noncompliance.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 ACCEPTABLE TESTING AGENCIES

- A. The following list of Testing Agencies are considered to be pre-approved and acceptable to perform the designated tests and inspections:
1. Earth Exploration
 2. Alt & Witzig
 3. ATC Group Services
 4. CTL Engineering
- B. Contractor may submit the qualifications of an alternate agency for approval by the Engineer.

3.2 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.

3. Date test or inspection results were transmitted to Engineer.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Engineer's reference during normal working hours.
1. Submit log at Project closeout as part of Project Record Documents.

3.3 REPAIR AND PROTECTION

- A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 73 00 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00

(NO TEXT FOR THIS PAGE)

SECTION 01 42 00 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Engineer's action on Contractor's submittals, applications, and requests, "approved" is limited to Engineer's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Engineer. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
 - 1. AABC - Associated Air Balance Council; www.aabc.com.
 - 2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
 - 3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
 - 4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
 - 5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
 - 6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
 - 7. ABMA - American Boiler Manufacturers Association; www.abma.com.
 - 8. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org
 - 9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
 - 10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
 - 11. AF&PA - American Forest & Paper Association; www.afandpa.org.
 - 12. AGA - American Gas Association; www.aga.org.
 - 13. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
 - 14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
 - 15. AI - Asphalt Institute; www.asphaltinstitute.org.
 - 16. AIA - American Institute of Architects (The); www.aia.org.
 - 17. AISC - American Institute of Steel Construction; www.aisc.org.
 - 18. AISI - American Iron and Steel Institute; www.steel.org.

19. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
20. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
21. ANSI - American National Standards Institute; www.ansi.org.
22. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
23. APA - APA - The Engineered Wood Association; www.apawood.org.
24. APA - Architectural Precast Association; www.archprecast.org.
25. API - American Petroleum Institute; www.api.org.
26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
27. ARI - American Refrigeration Institute; (See AHRI).
28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
29. ASCE - American Society of Civil Engineers; www.asce.org.
30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
32. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
33. ASSE - American Society of Safety Engineers (The); www.asse.org.
34. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
35. ASTM - ASTM International; www.astm.org.
36. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
37. AWEA - American Wind Energy Association; www.awea.org.
38. AWI - Architectural Woodwork Institute; www.awinet.org.
39. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
40. AWPA - American Wood Protection Association; www.awpa.com.
41. AWS - American Welding Society; www.aws.org.
42. AWWA - American Water Works Association; www.awwa.org.
43. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
44. BIA - Brick Industry Association (The); www.gobrick.com.
45. BICSI - BICSI, Inc.; www.bicsi.org.
46. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
47. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
48. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bissc.org.
49. CDA - Copper Development Association; www.copper.org.
50. CE - Conformance Européenne; <http://ec.europa.eu/growth/single-market/ce-marking/>
51. CEA - Canadian Electricity Association; www.electricity.ca.
52. CEA - Consumer Electronics Association; www.ce.org.
53. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
54. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.

55. CGA - Compressed Gas Association; www.cganet.com.
56. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
57. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
58. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
59. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
60. CPA - Composite Panel Association; www.pbmdf.com.
61. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
62. CRRC - Cool Roof Rating Council; www.coolroofs.org.
63. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
64. CSA - CSA Group; www.csa.ca.
65. CSA - CSA International; (Formerly: IAS - International Approval Services); www.csa-international.org.
66. CSI - Construction Specifications Institute (The); www.csinet.org.
67. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
68. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
69. CWC - Composite Wood Council; (See CPA).
70. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
71. DHI - Door and Hardware Institute; www.dhi.org.
72. ECA - Electronic Components Association; (See ECIA).
73. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
74. ECIA - Electronic Components Industry Association; www.eciaonline.org.
75. EIA - Electronic Industries Alliance; (See TIA).
76. EIMA - EIFS Industry Members Association; www.eima.com.
77. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
78. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
79. ESTA - Entertainment Services and Technology Association; (See PLASA).
80. ETL - Intertek (See Intertek); www.intertek.com.
81. EVO - Efficiency Valuation Organization; www.evo-world.org.
82. FCI - Fluid Controls Institute; www.fluidcontrolsintstitute.org.
83. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
84. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
85. FM Approvals - FM Approvals LLC; www.fmglobal.com.
86. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
87. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridarroof.com.
88. FSA - Fluid Sealing Association; www.fluidsealing.com.
89. FSC - Forest Stewardship Council U.S.; www.fscus.org.
90. GA - Gypsum Association; www.gypsum.org.
91. GANA - Glass Association of North America; www.glasswebsite.com.
92. GS - Green Seal; www.greenseal.org.
93. HI - Hydraulic Institute; www.pumps.org.

94. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
95. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
96. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
97. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
98. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
99. IAS - International Accreditation Service; www.iasonline.org.
100. IAS - International Approval Services; (See CSA).
101. ICBO - International Conference of Building Officials; (See ICC).
102. ICC - International Code Council; www.iccsafe.org.
103. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
104. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
105. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
106. IDEM - Indiana Department of Environmental Management; www.in.gov/idem/.
107. IEC - International Electrotechnical Commission; www.iec.ch.
108. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
109. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
110. IESNA - Illuminating Engineering Society of North America; (See IES).
111. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
112. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
113. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
114. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
115. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
116. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
117. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
118. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
119. ISO - International Organization for Standardization; www.iso.org.
120. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
121. ITU - International Telecommunication Union; www.itu.int/home.
122. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
123. LMA - Laminating Materials Association; (See CPA).
124. LPI - Lightning Protection Institute; www.lightning.org.
125. MBMA - Metal Building Manufacturers Association; www.mbma.com.
126. MCA - Metal Construction Association; www.metalconstruction.org.
127. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
128. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
129. MHIA - Material Handling Industry of America; www.mhia.org.
130. MIA - Marble Institute of America; www.marble-institute.com.
131. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.

132. MPI - Master Painters Institute; www.paintinfo.com.
133. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
134. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
135. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
136. NADCA - National Air Duct Cleaners Association; www.nadca.com.
137. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
138. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
139. NBI - New Buildings Institute; www.newbuildings.org.
140. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
141. NCMA - National Concrete Masonry Association; www.ncma.org.
142. NEBB - National Environmental Balancing Bureau; www.nebb.org.
143. NECA - National Electrical Contractors Association; www.necanet.org.
144. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
145. NEMA - National Electrical Manufacturers Association; www.nema.org.
146. NETA - InterNational Electrical Testing Association; www.netaworld.org.
147. NFHS - National Federation of State High School Associations; www.nfhs.org.
148. NFPA - National Fire Protection Association; www.nfpa.org.
149. NFPA - NFPA International; (See NFPA).
150. NFRC - National Fenestration Rating Council; www.nfrc.org.
151. NHLA - National Hardwood Lumber Association; www.nhla.com.
152. NLGA - National Lumber Grades Authority; www.nlga.org.
153. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
154. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
155. NRCA - National Roofing Contractors Association; www.nrca.net.
156. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
157. NSF - NSF International; www.nsf.org.
158. NSPE - National Society of Professional Engineers; www.nspe.org.
159. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
160. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
161. NWFA - National Wood Flooring Association; www.nwfa.org.
162. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
163. PDI - Plumbing & Drainage Institute; www.pdionline.org.
164. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); <http://www.plasa.org>.
165. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
166. RFCI - Resilient Floor Covering Institute; www.rfci.com.
167. RIS - Redwood Inspection Service; www.redwoodinspection.com.
168. SAE - SAE International; www.sae.org.
169. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
170. SDI - Steel Deck Institute; www.sdi.org.
171. SDI - Steel Door Institute; www.steeldoor.org.

172. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
173. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
174. SIA - Security Industry Association; www.siaonline.org.
175. SJI - Steel Joist Institute; www.steeljoist.org.
176. SMA - Screen Manufacturers Association; www.smainfo.org.
177. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
178. SMPTE - Society of Motion Picture and Television Engineers; www.smpete.org.
179. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
180. SPIB - Southern Pine Inspection Bureau; www.spib.org.
181. SPRI - Single Ply Roofing Industry; www.spri.org.
182. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
183. SSINA - Specialty Steel Industry of North America; www.ssina.com.
184. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
185. STI - Steel Tank Institute; www.steeltank.com.
186. SWI - Steel Window Institute; www.steelwindows.com.
187. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
188. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
189. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
190. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
191. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
192. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
193. TMS - The Masonry Society; www.masonrysociety.org.
194. TPI - Truss Plate Institute; www.tpinst.org.
195. TPI - Turfgrass Producers International; www.turfgrasssod.org.
196. TRI - Tile Roofing Institute; www.tilerroofing.org.
197. UL - Underwriters Laboratories Inc.; <http://www.ul.com>.
198. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
199. USAV - USA Volleyball; www.usavolleyball.org.
200. USGBC - U.S. Green Building Council; www.usgbc.org.
201. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
202. WA - Wallcoverings Association; www.wallcoverings.org
203. WASTEC - Waste Equipment Technology Association; www.wastec.org.
204. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
205. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
206. WDMA - Window & Door Manufacturers Association; www.wdma.com.
207. WI - Woodwork Institute; www.wicnet.org.
208. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
209. WWPA - Western Wood Products Association; www.wwpa.org.

- B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.
1. DIN - Deutsches Institut für Normung e.V.; www.din.de.
 2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
 3. ICC - International Code Council; www.iccsafe.org.
 4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.
- C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.
1. COE - Army Corps of Engineers; www.usace.army.mil.
 2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
 3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
 4. DOD - Department of Defense; www.quicksearch.dla.mil.
 5. DOE - Department of Energy; www.energy.gov.
 6. EPA - Environmental Protection Agency; www.epa.gov.
 7. FAA - Federal Aviation Administration; www.faa.gov.
 8. FG - Federal Government Publications; www.gpo.gov/fdsys.
 9. GSA - General Services Administration; www.gsa.gov.
 10. HUD - Department of Housing and Urban Development; www.hud.gov.
 11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
 12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
 13. SD - Department of State; www.state.gov.
 14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
 15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
 16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
 17. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
 18. USP - U.S. Pharmacopeial Convention; www.usp.org.
 19. USPS - United States Postal Service; www.usps.com.
- D. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
3. DSCC - Defense Supply Center Columbus; (See FS).
4. FED-STD - Federal Standard; (See FS).
5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.
 - a. Available from Defense Standardization Program; www.dsp.dla.mil.
 - b. Available from General Services Administration; www.gsa.gov.
 - c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org/ccb.
6. MILSPEC - Military Specification and Standards; (See DOD).
7. USAB - United States Access Board; www.access-board.gov.
8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00

(NO TEXT FOR THIS PAGE)

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Section 01 10 00 "Summary for Work" restrictions and limitations on utility interruptions.
 - 2. Section 31 25 00 "Erosion and Sedimentation Controls" for disposal of ground water at Project site.

1.3 REFERENCES

- A. Codes and standards referred to in this Section are:
 - 1. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations

1.4 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Owner and Owner's staff, Engineer, testing agencies, and authorities having jurisdiction.
- B. Sewer Service: Pay sewer-service use charges for sewer usage by all entities for construction operations.
- C. Water Service: Pay water-service use charges for water used by all entities for construction operations.

- D. Electric Power Service: Pay electric-power-service use charges for electricity used by all entities for construction operations.
- E. Provide water and electric meters for water and electric power services connections. Coordinate with Owner on whether a specific meter type is required for monitoring service.

1.5 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.
- B. Implementation and Termination Schedule: Within 15 days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility.

1.6 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.7 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Provide galvanized-steel bases for supporting posts.
- B. Dust-Control Adhesive-Surface Walk-Off Mats: Provide mats minimum 36 by 60 inches.

2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Contractor's Office: Erect, furnish, and maintain a field office. Have an authorized agent present at this office at all times while the Work is in progress. Keep readily accessible copies of the Contract Documents, required record documents, and the latest approved shop drawings at this field office.
- C. Coordinate location of field offices, material sheds and temporary structures with Engineer and Owner.
- D. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
- E. Store combustible materials apart from building.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
- C. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
- D. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

- A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
- B. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

3.2 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Locate facilities to limit site disturbance as specified in Section 01 10 00 "Summary."
- C. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.3 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
- B. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Prohibit and prevent nuisances on the site of the Work or on adjoining property. Discharge any employee who violates this rule. Abide by all environmental regulations or laws applicable to the Work.
- E. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- F. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.
- G. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
- H. Install electric power service as noted on the Drawings.

- I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
- J. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.4 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
 - 2. Maintain support facilities until Engineer schedules Substantial Completion inspection. Remove after the Substantial Completion walkthrough has been performed. Maintain only the temporary facilities required to achieve Final Completion. Contractor's personnel are not permitted to use the permanent facilities.
- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within construction limits indicated on Drawings.
 - 1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- C. Temporary Use of Planned Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
 - 1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
 - 2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Section 31 25 00 "Erosion and Sedimentation Controls."
 - 3. Recondition base after temporary use, including removing contaminated material, regrading, proof rolling, compacting, and testing.
 - 4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Section 32 12 16 "Asphalt Paving."
- D. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- E. Parking: Provide temporary parking areas for construction personnel. Ensure temporary traffic barriers are installed when open trenches.
- F. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
 2. Remove snow and ice as required to minimize accumulations.
- G. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 3. Provide temporary, directional signs for construction personnel and visitors.
 4. Maintain and touch up signs so they are legible at all times.
- H. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 01 73 00 "Execution."
- I. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
- J. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.
- K. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.
- 3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION
- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.

- C. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- D. Comply with work restrictions specified in Section 01 10 00 "Summary."
- E. Temporary Erosion and Sedimentation Control: Comply with requirements of the IDEM Rule 5 Permit and requirements specified in Section 31 10 00 "Site Clearing" and the Drawings.
- F. Storm water Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of storm water from heavy rains.
- G. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- H. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- I. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- J. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
- K. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
- C. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- D. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

- E. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
- F. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 1. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 - 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 77 00 "Closeout Procedures."

END OF SECTION 01 50 00

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Section 01 42 00 "References" for applicable industry standards for products specified.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved by Engineer through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

1.4 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Engineer will determine which products shall be used.
- B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.
1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.6 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. All product warranties shall commence at the date of Substantial Completion unless specified otherwise in the individual Specification Sections.
- D. Submittal Time: Comply with requirements in Section 01 77 00 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
 4. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in the General Conditions to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
1. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 2. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

2.2 "OR-EQUAL" PRODUCTS

- A. Conditions for Consideration of Or-Equal Products: Engineer will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Contractor may return requests without action, except to record noncompliance with these requirements:
1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements
 2. Evidence that proposed product provides specified warranty.
 3. List of similar installations for completed projects with project names and addresses, and contact information for references, if requested.

4. Samples, if requested.
- B. Submittal Requirements: Approval by the Engineer of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

(NO TEXT FOR THIS PAGE)

SECTION 01 73 00 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.Coordination of Owner-installed products.
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
- B. Related Requirements:
 - 1. Section 01 10 00 "Summary" for limits on use of Project site.
 - 2. Section 01 33 00 "Submittal Procedures" for submitting surveys.
 - 3. Section 01 77 00 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.
 - 4. Section 02 41 19 "Selective Demolition" for demolition and removal of selected portions of the Work.

1.3 REFERENCES

- A. Codes and standards referred to in this Section are:
 - 1. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations

1.4 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For land surveyor.
- B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.
- C. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
 - 1. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- D. Certified Surveys: Submit two copies signed by land surveyor.

1.6 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
 - 1. Provide an experienced survey crew including an instrument operator, competent assistants, and any instruments, tools, stakes, and other materials required to complete the survey, layout, and measurement of work performed by the Contractor.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify Engineer of locations and details of cutting and await directions from Engineer before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.

2. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
 3. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Engineer's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.
- 1.7 DATUM PLANE
- A. All elevations indicated or specified refer to the Indiana State Plane West, US Foot and are expressed in feet and decimal parts thereof, or in feet and inches.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Engineer for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services; and other utilities.

2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
1. Description of the Work.
 2. List of detrimental conditions, including substrates.
 3. List of unacceptable installation tolerances.
 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Engineer in accordance with the General Conditions.

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the survey and existing benchmarks. If discrepancies are discovered, notify Engineer promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 - 1. Establish limits on use of Project site.
 - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 3. Inform installers of lines and levels to which they must comply.
 - 4. Check the location, level and plumb, of every major element as the Work progresses.
 - 5. Notify Engineer when deviations from required lines and levels exceed allowable tolerances.
 - 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Control Points: Base horizontal and vertical control points are established in the Drawings and are to be used as the datum for the Work.
- D. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- E. Protection: Safeguard all points, stakes, grade marks, known property corners, monuments, and benchmarks made or established for the Work. Re-establish them if disturbed, and bear the entire expense of checking re-established marks and rectifying work improperly installed.
- F. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Engineer.

3.4 FIELD ENGINEERING

- A. Identification: Existing benchmarks, control points, and property corners are shown on the Drawings.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points. Report lost or destroyed permanent benchmarks or control points promptly.

2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.

- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Engineer.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Repair or remove and replace damaged, defective, or nonconforming Work.
 - 1. Comply with Section 01 77 00 "Closeout Procedures" for repairing or removing and replacing defective Work.

3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 01 10 00 "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 degrees F.
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 - 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 50 00 "Temporary Facilities and Controls."
- F. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- G. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- H. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

3.9 Coordinate startup and adjusting of equipment and operating components with requirements in Section 01 79 00 "Demonstration and Training."

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: Comply with qualification requirements in Section 01 40 00 "Quality Requirements."

3.10 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.
- C. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01 73 00

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.
- B. Related Requirements:
 - 1. Section 01 78 23 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
 - 2. Section 01 78 39 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 3. Section 01 79 00 "Demonstration and Training" for requirements to train the Owner's maintenance personnel to adjust, operate, and maintain products, equipment, and systems.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of cleaning agent.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at final completion.

1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of one week prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Engineer. Label with manufacturer's name and model number.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance and material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Engineer's signature for receipt of submittals.
 - 5. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures prior to Substantial Completion: Complete the following a minimum of one week prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 3. Complete startup and testing of systems and equipment.
 - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.

5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 01 79 00 "Demonstration and Training."
 6. Advise Owner of changeover in utility services.
 7. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 8. Complete final cleaning requirements.
 9. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of seven days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.
1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment according to Section 01 29 00 "Payment Procedures."
 2. Certified List of Incomplete Items: Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Engineer. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of one week prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Organize list of spaces in sequential order.
 - 2. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Engineer.
 - d. Name of Contractor.
 - e. Page number.
 - 3. Submit list of incomplete items in the following format:
 - a. MS Excel electronic file or PDF electronic file. Engineer will return annotated file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Engineer for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
- C. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

1.10 COMMISSIONING BINDER

- A. Upon completion of training for each equipment item, and prior to Final Completion, provide one (1) commissioning binder. Identify each section based on the equipment using heavy sections dividers with reinforced holes and numbered plastic index tabs. Use 3-ring, slant ring, hard-back binders, Type No. AVE-VS11 as manufactured by Avery Company, or equal. Binder size shall be 3-inch maximum. Punch all loose data for binding. Arrange composition and printing so that punching does not obliterate any data.
- B. At a minimum for each section, i.e. equipment item, provide the following:

1. Certificate of Installation, Inspection and Start-up Services
2. Equipment Data Summary
3. Equipment Preventative Maintenance Summary
4. Manufacturer's Operating and Maintenance Instructions
5. Certificate of Instructional Services
6. Manufacturer's Start-up and Installation Checklists
7. Warranty

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Comply with manufacturer's written instructions.
 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

- f. Sweep concrete floors broom clean in unoccupied spaces.
 - g. Remove labels that are not permanent.
 - h. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 50 00 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

END OF SECTION 01 77 00

SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory manuals.
 - 2. Emergency manuals.
 - 3. Systems and equipment operation manuals.
 - 4. Systems and equipment maintenance manuals.
 - 5. Product maintenance manuals.
- B. Related Requirements:
 - 1. Section 01 33 00 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
 - 2. Section 01 79 00 "Demonstration and Training" for verification and compilation of data into operation and maintenance manuals.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

- A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Engineer and Owner will comment on whether content of operation and maintenance submittals is acceptable.
 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operation and maintenance manuals in the following format:
- C. Initial Manual Submittal: Submit draft copy of each manual at 50% project completion in electronic PDF format. Do not submit O&M Manuals prior to shop drawing approval. Engineer will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 30 days before commencing demonstration and training in electronic PDF format. Engineer will return copy with comments.
1. Correct or revise each manual to comply with Engineer's comments. Submit copies of each corrected manual within 10 days prior to commencing demonstration and training. Provide one digital copy, in PDF Format, and three hard copies of each manual.
- E. Comply with Section 01 77 00 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.5 FORMAT OF MANUALS

- A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
- B. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title, Project title or name, subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
3. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold, and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

1.6 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 1. Title page.
 2. Table of contents.
 3. Manual contents.
- B. Title Page: Include the following information:
 1. Subject matter included in manual.
 2. Name and address of Project.
 3. Name and address of Owner.

4. Date of submittal.
 5. Name and contact information for Contractor.
 6. Name and contact information for Engineer.
 7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents.
- 1.7 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY MANUAL
- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals. List items and their location to facilitate ready access to desired information. Include the following:
1. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
 2. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
 3. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- 1.8 EMERGENCY MANUALS
- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- B. Content: Organize manual into a separate section for each of the following:
- OPERATION AND
MAINTENANCE DATA

1. Type of emergency.
 2. Emergency instructions.
 3. Emergency procedures.
- C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
1. Fire.
 2. Flood.
 3. Gas leak.
 4. Water leak.
 5. Power failure.
 6. Water outage.
 7. System, subsystem, or equipment failure.
 8. Chemical release or spill.
- D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- E. Emergency Procedures: Include the following, as applicable:
1. Instructions on stopping.
 2. Shutdown instructions for each type of emergency.
 3. Special operating instructions and procedures.
- 1.9 SYSTEMS AND EQUIPMENT OPERATION AND MAINTENANCE MANUALS
- A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, routine and special operating procedures, manufacturers' maintenance documentation, preventative maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.
1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name, and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Content: In addition to requirements in this Section, include operation and maintenance data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 2. Performance and design criteria if Contractor has delegated design responsibility.
 3. Operating standards.
 4. Operating procedures.
 5. Operating logs.
 6. Wiring diagrams.
 7. Control diagrams.
 8. Piped system diagrams.
 9. Precautions against improper use.
 10. License requirements including inspection and renewal dates.
 11. Manufacturers' Maintenance Documentation
- D. Descriptions: Include the following:
1. Product name and model number. Use designations for products indicated on Contract Documents.
 2. Manufacturer's name.
 3. Equipment identification with serial number of each component.
 4. Equipment function.
 5. Operating characteristics.
 6. Limiting conditions.
 7. Performance curves.
 8. Engineering data and tests.
 9. Complete nomenclature and number of replacement parts.
- E. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.

8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.
- F. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- G. Piped Systems: Diagram piping as installed and identify color coding where required for identification.
- H. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:
1. Standard maintenance instructions, bulletins, and procedures; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
 2. Maintenance and service schedules.
 3. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 4. Identification and nomenclature of parts and components.
 5. List of items recommended to be stocked as spare parts.
 6. Warranties and Bonds
- I. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
 2. Troubleshooting guide.
 3. Precautions against improper maintenance.
 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 5. Aligning, adjusting, and checking instructions.
 6. Demonstration and training video recording, if available.
- J. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.

2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- K. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- L. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 1. Include procedures to follow and required notifications for warranty claims.
- M. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
 1. Do not use original project record documents as part of maintenance manuals.

1.10 PRODUCT MAINTENANCE MANUALS

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- C. Source Information: List each product included in manual, identified by product name, and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Product Information: Include the following, as applicable:
 1. Product name and model number.
 2. Manufacturer's name.
 3. Color, pattern, and texture.
 4. Material and chemical composition.
 5. Reordering information for specially manufactured products.
- E. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 1. Inspection procedures.

2. Types of cleaning agents to be used and methods of cleaning.
 3. List of cleaning agents and methods of cleaning detrimental to product.
 4. Schedule for routine cleaning and maintenance.
 5. Repair instructions.
- F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 78 23

TOWN OF WHEATLAND, INDIANA

WHEATLAND WASTEWATERSYSTEM IMPROVEMENTS DIVISION II – LOW PRESSURE SEWER
SYSTEM

Equipment Data Summary

Equipment Tag:

Specification Reference:

Manufacturer:

Name:

Address:

Telephone:

Number Supplied:

Location/Service:

Model No:

Serial No:

Type:

Size/Speed/Capacity/Range (as applicable):

Power Requirement (Phase/Volts/Hertz):

Local Representative:

Name:

Address:

Telephone:

NOTES:

(NO TEXT ON THIS PAGE)

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
- B. Related Requirements:
 - 1. Section 01 73 00 "Execution" for final property survey
 - 2. Section 01 77 00 "Closeout Procedures" for general closeout procedures.
 - 3. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit copies of Record Drawings as follows:
 - a. Initial Submittal:
 - 1) Submit PDF electronic files of scanned record prints.
 - 2) Engineer will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal:
 - 1) Submit one paper-copy set of marked-up record prints
 - 2) Submit PDF electronic files of scanned record prints.
 - 3) Print each drawing, whether or not changes and additional information were recorded.

- B. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit number of copies of each submittal as defined in the various Specification Sections.

1.4 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding photographic documentation.
 - 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Locations and depths of underground utilities.
 - d. Revisions to routing of piping and conduits.
 - e. Revisions to electrical circuitry.
 - f. Changes made by Change Order or Work Change Directive.
 - g. Changes made following Engineer's written orders.
 - h. Details not on the original Contract Drawings.
 - i. Field records for variable and concealed conditions.
 - j. Record information on the Work that is shown only schematically.
 - 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 - 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 - 5. Mark important additional information that was either shown schematically or omitted from original Drawings.

6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Format: Annotated PDF electronic file with comment function enabled.
 3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
 4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Engineer.
 - e. Name of Contractor.
- 1.5 RECORD PRODUCT DATA
- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders and record Drawings where applicable.
- 1.6 MISCELLANEOUS RECORD SUBMITTALS
- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

1.7 MAINTENANCE OF RECORD DOCUMENTS

- A. Maintenance of Record Documents: Store record documents in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Engineer's reference during normal working hours.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 78 39

SECTION 01 79 00 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Instruction in operation and maintenance of systems, subsystems, and equipment
 - 2. Demonstration and training video recordings.

1.3 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.
- B. Qualification Data: Submit for approval, credentials of equipment manufacturer representatives who are to be course instructors at least 15 days prior to the training sessions.
- C. Attendance Record: For each training module, submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.4 CLOSEOUT SUBMITTALS

- A. Demonstration and Training Video Recordings: Submit one copy within seven days of end of each training module.
 - 1. Identification: On each copy, provide an applied label with the following information:
 - a. Name of Project.
 - b. Name and address of videographer.
 - c. Name of Engineer.
 - d. Name of Contractor.
 - e. Date of video recording.
 - 2. Transcript: Prepared in PDF electronic format. Include a cover sheet with same label information as the corresponding video recording and a table of contents with links to corresponding training components. Include name of Project and date of video recording on each page.
 - 3. At completion of training, compile transcripts and submit complete training manual(s) for Owner's use prepared in both hard copy and electronic format required for operation and maintenance manuals specified in Section 01 78 23 "Operation and Maintenance Data."

1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 01 40 00 "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Videographer Qualifications: A professional videographer who is experienced photographing demonstration and training events.

1.6 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Engineer.

1.7 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
 - 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Systems and equipment operation manuals.
 - c. Systems and equipment maintenance manuals.
 - d. Product maintenance manuals.
 - e. Project Record Documents.
 - f. Identification systems.
 - g. Warranties and bonds.
 - 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.

- f. Special operating instructions and procedures.
4. Operations: Include the following, as applicable:
- a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
5. Adjustments: Include the following:
- a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
6. Troubleshooting: Include the following:
- a. Diagnostic instructions.
 - b. Test and inspection procedures.
7. Maintenance: Include the following:
- a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning.
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
8. Repairs: Include the following:
- a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.

- e. Review of spare parts needed for operation and maintenance.

1.8 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 01 78 23 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

1.9 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Owner will furnish Contractor with names and positions of participants.
- C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner, through Owner's operations staff with at least seven days' advance notice.
- D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.
- F. Cleanup: Collect used and leftover educational materials and give to Owner unless instructed otherwise. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

1.10 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.

1. At beginning of each training module, record each chart containing learning objective and lesson outline.
 2. Perform hands-on training with operations staff to facilitate understanding of operation and maintenance activities. Hands-on training does not need to be recorded.
- B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full HD mode.
1. Submit video recordings on a USB thumb drive and upload a copy to the project ShareFile/FTP website.
 2. File Hierarchy: Organize folder structure and file locations according to Project Manual table of contents. Provide complete screen-based menu.
 3. File Names: Utilize file names based on name of equipment generally described in video segment, as identified in Project specifications.
 4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the equipment demonstration and training recording that describes the following for each contractor involved on the Project, arranged according to Project Manual table of contents:
 - a. Name of Contractor/Installer.
 - b. Business address.
 - c. Business phone number.
 - d. Point of contact.
 - e. Email address.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
1. Film training session(s) in segments not to exceed 15 minutes.
 - a. Produce segments to present a single significant piece of equipment per segment.
 - b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
 - c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming, and pause training session. Begin training session again upon commencement of new filming segment.
- D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.
1. Furnish additional portable lighting as required.

- E. Transcript: Provide a transcript of the instruction module. Display images and running time captured from videotape opposite the corresponding training segment.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

3.1 TRAINING SESSIONS

- A. Conduct all training during regular hours on weekdays and coordinate the scheduling of all training with the Owner.
- B. Perform training utilizing actual equipment in service. Use of equipment for training will not void manufacturers' or contract warranties.
- C. Provide training for the following:

<u>Specification Section</u>	<u>Equipment Name</u>	<u>Minimum Training Hours</u>
33 32 16.13 Grinder Pump Station Unit	Grinder Pumps	12
33 32 21 Combination Air Release Valve Stations	Combination Air Release Valve Stations	4

END OF SECTION 01 79 00

CERTIFICATE OF INSTRUCTIONAL SERVICES

Project: _____

Equipment: _____

Specification Section: _____

I hereby certify the equipment Manufacturers' Representative has instructed Owner's personnel in startup operation and maintenance of this equipment as required in the Contract Documents.

Manufacturer's Representative

Signature _____

Name: (print) _____

Title: _____

Representing _____

Contractor

Signature _____ Date _____

Name (print) _____

Title _____

Owner

Signature _____ Date _____

Name (print) _____

Title _____

Comments:

Complete and submit this form to Engineer upon completion of training as required by Specification Section 01 79 00.

SECTION 02 41 19 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Demolition and removal of selected site elements.
 - 2. Salvage of existing items to be reused or recycled.
- B. Related Requirements:
 - 1. Section 01 10 00 "Summary" for restrictions on the use of the premises, Owner-occupancy requirements, and phasing requirements.
 - 2. Section 01 50 00 "Temporary Facilities and Controls" for the preconstruction video.
 - 3. Section 01 73 00 "Execution" for cutting and patching procedures.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 REFERENCES

- A. Codes and standards referred to in this Section are:

1. ANSI/ASSE A10.6 - Safety & Health Program Requirements for Demolition Operations
2. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations

1.5 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.6 INFORMATIONAL SUBMITTALS

- A. Demolition Plan
 1. Include Proposed Protection Measures: Submit plan that indicates the measures proposed for protecting individuals, property, and adjacent buildings, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
 2. Plan should provide the most expeditious dismantling of the structure safely feasible to minimize the duration of time partially standing structures remain.
- B. Preconstruction/Predemolition Photographs or Video: Submit before Work begins.
- C. Contractor shall provide thorough and complete written documentation of the demolition of the elevated tank. The documentation shall include a description of the material, date of removal, and date of delivery to the receiving facility if requested. The documentation shall include the written verification of the receiving facility.

1.7 CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.
- B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes if required.

1.8 FIELD CONDITIONS

- A. Owner will occupy portions of building adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Notify Engineer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- C. Hazardous Materials: It is expected that lead paint will be encountered in the Work, specifically in the existing elevated storage tank. Follow 29 CFR 1910.1025(a)(2) for protection during demolition.
 - 1. If other suspected hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner. They will be removed by Owner under a separate contract.
- D. Storage or sale of removed items or materials on-site is not permitted.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.

- C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Engineer.

3.2 DAMAGE SURVEY.

- A. Requirements: Conduct a damage survey of the Work site and adjacent properties prior to commencing the Work and before making application for final payment for the Work. Owner shall be present during the videotaping. Provide Owner with two copies of the videotaping on USB drives. Record all planned construction areas, material storage areas, areas adjacent to these areas, including but not limited to, farmland, streets, driveways, sidewalks, curbs, ditches, fencing, railing, visible utilities, retaining structures, landscaping and trees, and adjacent building structures. The purpose of the video is to document existing site conditions and to provide a fair measure of required restoration. Care should be taken to record all existing conditions which exhibit deterioration, imperfections, structural failures, or situations that would be considered substandard. The video image shall be of sufficient detail to delineate important features and conditions of the project area including public right-of-way and adjacent private property.
- B. No recording shall be performed during periods of precipitation, mist, fog or when the ground is covered in snow. The recording shall only be done when sufficient sunlight is present to properly illuminate the subjects of recording. The audio portion of the recording shall reproduce precise and concise explanatory notes by the camera operator with proper volume, clarity and freedom from distortion.
- C. At the start of production and at the beginning of a new street, building or basement, an identification summary shall be read into the recording while using a wide-angle view of the video to display numeric displays for visual record. This summary shall include: 1) tape number; 2) project name; 3) job location; 4) positional location at start of job; 5) date and time; 6) weather; 7) direction of camera; 8) any other notable conditions.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
 - 1. Comply with requirements for existing services/systems interruptions specified in Section 01 10 00 "Summary."
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

3.4 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Comply with requirements for access and protection specified in Section 01 50 00 "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
 5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 01 50 00 "Temporary Facilities and Controls."
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
 1. Strengthen or add new supports when required during progress of selective demolition.

3.5 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 3. Do not use cutting torches.
 4. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials.
 5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 6. Dispose of demolished items and materials promptly.
- B. Removed and Salvaged Items:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to Owner's storage area as designated by Owner.
 5. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Engineer, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
- 3.6 DISPOSAL OF DEMOLISHED MATERIALS
- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site.
1. Do not allow demolished materials to accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn demolished materials.

- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them at the expense of the Contractor. The Contractor shall bear full responsibility for any and all fines against the project resulting from improper handling and disposal of the waste materials.

3.7 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 41 19

(NO TEXT FOR THIS PAGE)

SECTION 26 00 00 – ELECTRICAL INDEX

26 05 00	Common Work Results for Electrical
26 05 19	Low-Voltage Electrical Power Conductors and Cables
26 27 26	Wiring Devices
26 28 16	Disconnect Switches

SECTION 26 05 00 - COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. The description of work is as described in the plan drawings and specifications.
- B. The Common Work Results for Electrical apply to all electrical materials, equipment, installations, and services supplied under any portion of the work. The Contractor shall coordinate the Common Work Results for Electrical as applicable to any equipment, installations, and services of an electrical nature.
- C. It is the intention of this Division of the Specifications and the accompanying drawings to describe and provide for the furnishing, installing, testing, and placing in satisfactory and successful operation all equipment, materials, devices, and necessary appurtenances to provide a complete electrical system, together with such other miscellaneous installations and equipment hereinafter specified and/or shown on the plans. The work shall include all materials, appliances and apparatus not specifically mentioned herein or noted on the plans, but which are necessary to provide a complete working installation of all electrical systems shown on the plans or described herein. Equipment and devices furnished and installed under other Divisions of this specification (or by the Owner) shall be connected under this Division. The drawings and specifications are complementary and what is called for in either, is binding as if called for in both.
- D. The contract drawings indicate the extent and the general location and arrangement of equipment, conduit, and wiring. The contractor shall study plans and details and shall cooperate with all other trades to prevent conflict and interference as to space requirements. Fixtures, equipment, and outlets shall be located to avoid interference with mechanical or structural features. Lighting fixtures shall be symmetrically located according to the room arrangement. Raceways, junction and outlet boxes, lighting fixtures, and all other electrical equipment shall be properly supported to comply with applicable codes and good work practices.
- E. The Contractor is responsible for installation of a complete and operating electrical system in accordance with the intent of the drawings and specifications.
- F. The scale of drawings cannot show all necessary transitions, offsets, changes in direction, etc. It shall be the responsibility of the Contractor to provide all pull boxes, elbows, fittings, supports, etc. necessary to install his work to conform to structures, to preserve headroom and to keep openings and passageways clear.

- G. Electrical diagrams are schematic and diagrammatic only, not necessarily to scale, and do not necessarily show physical arrangement of equipment. Electrical diagrams and plans are complementary and what is shown on either is the same as if shown on both.
- H. The horsepower of motors and equipment wattages indicated on the plans are based on information made available to the Engineer and field notes of existing installation, and are as accurate as practical; however, there may be discrepancies. All wiring, switches, circuit breakers, magnetic motor starters, soft-starters, and variable frequency drives shall be of size and capacity to suit the horsepower of the motors and equipment actually furnished, and actually being connected; however, in no case shall wiring, switches, circuit breakers and motor starters and drives be of smaller capacity or size than those indicated on the drawings or specified unless approved, in writing, by the Engineer.
- I. Any minor changes in the location of all equipment, switchboards, panelboards, starters, fixtures, conduits, outlets, etc. from those shown on the plans shall be made without extra charge if so directed by the Engineer or Owner before installation.
 - 1. Minor changes in location shall be defined as within 15 feet in any direction, horizontally or vertically, from the location indicated on the drawings.
- J. Make detailed arrangements with the Owner for selected electrical service work and any/all shutdowns required.
 - 1. Provide temporary services: The Contractor shall be responsible for, and bear the cost of, all temporary service or equipment feeders which may be required.
 - 2. All shutdown and power transfer work must be closely scheduled with the Owner, approved in advance by the Owner, and at the convenience of the Owner; and shall be performed only with the Owner present and/or under direct/indirect supervision of the Owner.
 - 3. Power shutdowns and transfers must be scheduled with the Owner and all such shutdowns and transfers shall be scheduled at the Owner's convenience. At the Owner's discretion, work may be required to be performed on holidays, weekends, evenings, early mornings, and during similar non-standard work periods, without additional cost to the Owner.
 - a. The above requirement for performing work during non-standard work periods also applies to any work that can only be safely performed during a power shutdown.

1.3 PERMITS AND FEES

- A. This work shall include the procurement of, and payment for, all permits and fees required for the performance of the electrical work.

1.4 COORDINATION OF ELECTRICAL WORK

- A. Contract documents are diagrammatic in showing certain physical relationships, which must be established; such establishment and the final physical relationship is the exclusive responsibility of the Contractor.

1. Arrange electrical work in a neat, well-organized manner with conduit and similar services running parallel with primary lines of structures, and which shall maximize overhead clearance.
2. Locate operating and control equipment and arrange entire electrical work with adequate access for operation and maintenance, and in accordance with all applicable governing codes.
3. Advise other trades of openings required in their work, and scheduling cooperation required, for the subsequent move-in of large units of electrical work (equipment, conduits, pull boxes, etc.).
4. Direct work to a residential home service meter shall be arranged and coordinated with local utility and residence owner prior to disconnect of service.

1.5 COORDINATION OF OPTION, SUBSTITUTIONS, AND ARRANGEMENT

- A. Where the contract documents permit the selection from several product options, and where it becomes necessary to authorize a substitution, do not proceed with purchasing until coordination of interface requirements has been checked and satisfactorily established.
- B. The Contractor will not be paid for cutting, patching, retrofitting, and finishing required for relocation of work installed due to interference and improperly located equipment.

1.6 QUALITY ASSURANCE

- A. In case of difference between building codes, state laws and federal laws, local ordinances, industry standards and utility regulations and the Contract Documents, the most stringent shall govern. The Contractor shall promptly notify the Engineer in writing of any such difference.

1.7 NON-COMPLIANCE

- A. Should the Contractor perform any work that does not comply with the requirements of the applicable building codes, state and federal laws, local ordinances, industry standards and utility regulations, they shall bear all costs in correcting all deficiencies.
- B. Applicable codes and standards shall include all the state laws, local ordinances, utility company regulations and the applicable requirements of the following nationally accepted codes and standards. All the following codes shall apply to the equipment, and equipment installation, where applicable. All equipment shall bear U.L. labels where labeled equipment is available.
- C. Industry Standards, Codes and Specifications
 1. NEC National Electrical Code (NFPA No. 70) with State Amendments
 2. UBC International Building Code with State Amendments
 3. ANSI C2 National Electrical Safety Code.
 4. IEEE Institute of Electrical and Electronics Engineers.
 5. ASTM American Society of Testing Materials.
 6. IPCEA Insulated Power Cable Engineers Association.
 7. NEMA National Electrical Manufacturers Association.

8. NFPA National Fire Protection Association.
9. UL Underwriters Laboratories.
10. NECA Standard of Installation, National Electrical Contractor's Association.
11. NFPA No. 101 Life Safety Code.
12. FM Factory Mutual
13. ADA Americans with Disabilities Act

- D. All electric materials shall be new, in original cartons, bundles, or shipping crates and shall have a U.L. label whenever available.
- E. Nothing in these drawings and specifications shall be construed to permit work not conforming to governing codes; and shall not be construed as relieving the Contractor from complying with any requirements of the plans or specifications which may exceed requirements of the hereinbefore mentioned governing codes and rules and not contrary to same.

1.8 MANUFACTURERS

- A. Firms regularly engaged in the manufacture of the equipment specified of the types and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years, unless specified otherwise.

1.9 INSTALLERS

- A. A firm with at least 5 years of successful installation experience on projects with electrical work similar to that required for the project, unless specified otherwise.

1.10 SUBMITTALS

- A. General: Provide submittals, shop drawings and descriptive data for selected items, and obtain Engineer's approval of same prior to proceeding with work.
- B. Submittals shall include, but not be limited to, information on the following if required for this project:
 1. Switchboards/Power Distribution Panelboards.
 2. Switchboard/Power Distribution Circuit Breakers.
 3. Switchboard/Power Distribution Panelboard Customer Metering.
 4. Motor Starters, Soft-Starters, and Variable Frequency Drives.
 5. VFD Accessories, such as Line and Load Reactors.
 6. Disconnect Switches and Enclosed Circuit Breakers.
 7. Transformers.
 8. Lighting Fixtures.
 9. Diesel Engine Driven Generators.
 10. Automatic Transfer Switches.
 11. Heat Tracing.
 12. Custom Control Panels, if not otherwise provided by the Division 25 Contractor.
 13. Testing and Commissioning Reports as part of Closeout.

14. Full Documentation of Programming and Licensed Copies of Software, as applicable, as part of Closeout.
15. Documentation of Training Conducted and Training Manuals.
16. Record Drawings (marked prints) of As-Built Conditions (for CAD drafting by the Engineer.
17. Operation and Maintenance Manuals, as part of Closeout.
18. Sketches of Equipment Mounting Racks with Equipment Locations, prior to shop or field fabrication. Use equipment shop drawings for dimensions and weights needed.
19. Equipment ID Nameplates and Nameplate List.

C. Submittals shall comply with the following:

1. Include complete catalog information such as construction, ratings, and insulating systems, wiring diagrams, description of operation, etc., as applicable.
2. For any material specified to meet U.L. or trade standards; furnish manufacturer's or vendor's certification that material furnished for work does in fact equal or exceed Specifications.
3. Shop drawings shall be submitted in complete groups of material (i.e., all fixtures or all switchgear, panels, etc.), and each item of material submitted shall have Contractor's stamp and be initialed by Contractor as verification that submittal has been reviewed in detail and is in fact Contractor's choice of materials. Bind catalog cuts, descriptive bulletins, and drawings, 11" x 17" or smaller, in sets with covers showing titles. Contractor shall verify dimensions of equipment and be satisfied as to code compliance for fit prior to submitting shop drawings for approval. Departure from the above noted procedure would result in rejection of the submittal and the requirement that the Contractor revise and resubmit the information. Any costs associated with delays arising out of such resubmittal process shall be the sole responsibility of the Contractor.

1.11 O&M MANUALS

- A. Submit three sets of Operation and Maintenance Manuals.

1.12 WARRANTIES

- A. All new equipment shall have a warranty of one (1) year, including all parts and labor.

END OF SECTION 26 05 00

SECTION 26 05 19 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Extent of electrical wire and cable work is indicated by the project drawings.
- B. Types of wire, cable and connectors specified in this section include the following:
 - 1. 600-volt insulated Copper conductors.
 - 2. Fixture wires.
 - 3. Tap-type connectors.
 - 4. Mechanical and compression connectors.
 - 5. Twist-on insulated metal spring connectors.
- C. Signal, instrumentation, and control type wire and cable products are not part of this Section.
- D. Applications of electrical wire, cable, and connectors required for project are as follows:
 - 1. For power distribution circuitry.
 - 2. For branch-circuit appliances and equipment.
 - 3. For 120VAC and 24VAC control circuits.

1.2 QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in the manufacture of electrical wire and cable products of types, sizes, and ratings required, whose products have been in satisfactory use in similar service for not less than three (3) years.
- B. Installer's Qualifications: Firm with at least three (3) years of successful installation experience with projects utilizing electrical wiring and cabling work similar to those required for project.
- C. NEC Compliance: Comply with NEC requirements as applicable to construction, installation; and color coding of electrical wires and cable.
- D. UL Compliance: Comply with applicable requirements of UL Std. 83, "Thermoplastic-Insulated Wires and Cables", and Std 486A, "Wire Connectors and Soldering Lugs for Use with Copper Conductors," except where manufacturer's torque-tightening requirements are more stringent.
- E. UL Labels: Provide wiring/cabling and connector products that are UL listed and labeled.
- F. NEMA/ICEA Compliance: Comply with NEMA/ICEA Std Pub/No.'s WC 5, "Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy," and WC-30, "Color

Coding of Wires and Cables," pertaining to electrical-power-type wires and cables.

- G. IEEE Compliance: Comply with applicable requirements of Std 241, "IEEE Recommended Practice for Electric Power Systems in Commercial Buildings" pertaining to wiring systems.
- H. ASTM Compliance: Comply with applicable requirements of ASTM B1, 2, 3, 8 and D-753. Provide copper conductors with conductivity of not less than 98% at 20 Deg.C.(68 Deg. F.).

1.3 STANDARDS

- A. All materials shall be new, manufactured in accordance with the latest edition of UL, NEMA, ANSI, and IPCEA.
- B. All cables furnished shall be of same type and by same manufacturer. All accessories of a particular type shall be by the same manufacturer.

1.4 SUBMITTALS

- A. Submit shop drawings for wire, connectors, and related products.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver wire and cable properly packaged in factory-fabricated type containers or wound on NEMA-specified type non-returnable wire and cable reels.
- B. Store wire and cable in clean, dry space in original containers. Protect products from weather, damaging fumes, construction debris and traffic.
- C. Handle wire and cable carefully to avoid abrading, puncturing, or tearing wire and cable insulation and sheathing. Ensure that dielectric resistance integrity of wires/cables is maintained.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to, the following:
 - 1. Wire and Cable:
 - a. American Insulated Wire Corp.
 - b. Brand-Rex Div; Pyle National Co.
 - c. Cerro Wire and Cable Co.
 - d. Hitemp Wires, Inc.
 - e. Phelps Dodge Cable and Wire Co.

- f. Pirelli Cable Corp.
- g. Rome Cable Corp.
- h. Southwire Company.

2. Connectors:

- a. AMP, Inc.
- b. Burndy Corporation
- c. Brand-Rex Div., Pyle National Co.
- d. General Electric Co.
- e. 3M Company
- f. O-Z/Gedney Co.
- g. Square D Company
- h. Thomas and Betts Corp.

2.2 WIRES, CABLES AND CONNECTORS

- A. General: Provide electrical wires, cables and connectors of manufacturer's standard materials, as indicated by published product information; designed and constructed as recommended by manufacturer, for a complete installation, and for application indicated.
- B. Except as otherwise indicated, provide copper conductors with conductivity of not less than 98% at 20 Deg. C (68 Deg. F).
 - 1. For this project, Aluminum conductors may be used for power circuits 150 Amperes and larger, if the aluminum conductor AWG size is equivalent to a copper conductor.
 - 2. All equipment ground conductors shall be copper; no exceptions.
- C. Wires: Provide factory-fabricated wire of sizes, ampacity ratings, and materials for applications and services indicated. Where not indicated, provide proper selection as determined by Installer to comply with project requirements, NEC and NEMA standards. Select from the following UL types, those wires with construction features which fulfill project requirements. Conductors shall be annealed copper.
 - 1. Type THWN-THHN, XHHW-2: For dry and wet locations; max dry location operating temperature 90 Deg. C. Insulation shall be flame-retardant, moisture-resistant, and heat-resistant thermoplastic; outer covering shall be nylon jacket.
 - a. Apply conductors at 75 deg. C. ampere rating for circuits greater than 100 amperes. Use 60 deg. C. ampere rating for circuits 100A or less.
 - b. Provide XHHW-2 type wiring on the load-side of variable frequency drives or as specified in the drawings.
 - 2. Minimum Control Circuit AWG size: #14.
 - 3. Minimum Power Circuit AWG size: #12.
 - 4. Increase AWG size as needed to keep total voltage drop less than or equal to 5%.

2.3 CONNECTORS

- A. General: Provide UL-type factory-fabricated, metal connectors of sizes, ampacity ratings, material, types and classes for applications and for services indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements, NEC and NEMA standards. Ensure connector materials mate and match and are compatible with conductor materials and cables. Select from the following types:
1. Type: Insulated mechanical-bolted parallel or compression type for feeders and generator circuits; twist-on insulated metal spring connectors for #12 and #10 AWG miscellaneous branch circuit wiring, including equipment ground conductors.
 2. Material: Copper (for Cu to Cu connection) or CU/AL type.
 3. Insulation: All connectors shall be fully insulated to match insulation type and rating of conductors being spliced.

PART 3 - EXECUTION

3.1 INSTALLATION OF WIRES AND CABLES

- A. General: Install electrical cables, wires and wiring connectors as indicated, in compliance with applicable requirements of NEC, NEMA, UL, and NECA's "Standard of Installation," and in accordance with recognized industry practices.
- B. Coordinate wire/cable installation with electrical raceway and equipment installation work, as necessary.
- C. Install all wiring in conduit.
- D. Pull conductors together where more than one is being installed in a raceway.
- E. Use pulling compound or lubricant, where necessary. Compound must not deteriorate conductor or insulation. Use of soap is not permitted as a pulling lubricant.
- F. Use pulling means, including fish tape, cable, rope and basket-weave wire/cable grips that will not damage cables or raceway.
- G. Keep conductor splices to a minimum.
- H. Install splices and tapes that possess equivalent-or-better mechanical strength, electrical ampacity, and insulation ratings than conductor being spliced.
1. Use heat-shrink or cold-shrink splice kits for feeder circuit splices.

- I. Use splice and tap connectors that are compatible with conductor material.
- J. Tighten electrical connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Std 486A.
- K. Use twist-on insulated metal spring connectors for #14 control and #12 and #10 AWG branch circuit wiring, including equipment ground conductors.
- L. Pull in a properly sized green color 600VAC insulated copper equipment ground wire with all conduit runs, including PVC, metal conduits, and flexible conduits.

3.2 FIELD QUALITY CONTROL

- A. Prior to energizing circuitry, check installed service and feeder wires and cables with megohm meter to determine insulation resistance levels, to ensure insulation integrity.
- B. Prior to energizing, test wires and cables for electrical continuity and for short-circuits. Test branch circuit wiring with ohmmeter.
- C. Subsequent to wire and cable hook-ups, energize circuitry and demonstrate functioning in accordance with requirements. Where necessary, replace faulty conductors and retest to demonstrate compliance.
- D. Ensure correct rotation of all motors.
- E. Ensure correct sequence of phases at all switchgear and panelboards. Phase-sequence testing shall be performed in the presence of the Owner and Engineer, on both high-voltage and low-voltage systems, on both existing and new equipment. Ensure all phases of all circuits are identified. Ensure proper rotation of all motors. Ensure phase sequence of tie circuit(s) and both sides of secondary unit substation are exactly the same (as applicable). Provide A-B-C phase arrangement, left-to-right, top-to-bottom.

END OF SECTION 26 05 19

SECTION 26 27 26 - WIRING DEVICES

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. The extent of wiring device work is indicated by drawings. Wiring devices are defined as single discrete units of electrical distribution systems which are intended to carry but not utilize electric energy.
- B. Types of electrical wiring devices in this section include the following:
 - 1. GFCI type receptacles.
 - 2. Weatherproof GFCI type receptacles.
 - 3. Weatherproof toggle switches.
 - 4. Other wiring devices as noted on drawings.

1.2 QUALITY ASSURANCE

- A. NEC Compliance: Comply with NEC as applicable to installation and wiring devices.
- B. UL Compliance: Comply with applicable requirements of UL 20, "General-Use Snap Switches"; 486A "Wire Connectors and Soldering Lugs for Use With Copper Conductors"; 498, "Electrical Attachment Plugs and Receptacles"; and 943, "Ground Fault Circuit Interrupters" pertaining to installation of wiring devices. Provide wiring devices which are UL-listed and labeled.
- C. NEMA Compliance: Comply with applicable portions of NEMA Stds Pub/ No. WD 1, "General-Purpose Wiring Devices", WD 2, "Semiconductor Dimmers for Incandescent Lamps", and WD 5, "Specific-Purpose Wiring Devices".

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering wiring devices which may be incorporated in the work include, but are not limited to, the following:
 - 1. Hubbell Inc.
 - 2. Arrow-Hart

3. Pass & Seymour.
4. Leviton.
5. Eagle.
6. Crouse Hinds
7. Appleton
8. Killark
9. or approved equal.

2.2 FABRICATED WIRING DEVICES

- A. General: Provide factory-fabricated wiring devices, in types, colors, and electrical ratings for applications indicated and which comply with NEMA Stds. Pub No. WD 1.

2.3 RECEPTACLES

- A. Ground-Fault Circuit Interrupters: Provide "feed-through" type ground-fault circuit interrupters, with heavy-duty duplex receptacles, capable of protecting connected downstream receptacles on single circuit, and of being installed in a 2-3/4" deep outlet box without adapter, grounding type UL-rated Class A, Group 1, rated 20-amperes, 120 volts, 60 Hz; with solid-state ground-fault sensing and signaling; with 5 milliamperes ground-fault trip level; equip with NEMA 5-20R configuration; side screw wiring terminals. Similar to Hubbell #GF5362.
- B. All receptacles shall be installed with the ground in the DOWN position, if receptacle is oriented vertically.
- C. All receptacles installed outdoors shall be GFCI / Weather-Resistant type with In-Use cover.

PART 3 – EXECUTION

3.1 INSTALLATION OF WIRING DEVICES

- A. Install wiring devices as indicated, in accordance with manufacturer's written instruction, applicable requirements of NEC and NECA's "Standard of Installation", and in accordance with recognized industry practices to fulfill project requirements.
- B. Coordinate with other work, including painting, electrical boxes and wiring work, as necessary to interface installation of wiring devices with other work.
- C. Install wiring devices only in electrical boxes, which are clean; free from excess building material, dirt, and debris.
- D. Install wiring devices after wiring pull-in work is completed.
- E. Tighten connectors and terminals, including screws and bolts, in accordance with

equipment manufacturer's published torque tightening values for wiring devices. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Stds 486A. Use properly scaled torque indicating hand tool.

- F. Devices installed outdoors shall be installed in FD/FS style cast aluminum outlet boxes.
- G. Provide devices rated for the classification as noted on the drawing and properly seal (seal-off) device as required by the NEC.

3.2 PROTECTION OF WALL PLATES AND RECEPTACLES

- A. At time of Substantial Completion, replace those items which have been damaged, including those burned and scored by faulty plugs.

3.3 GROUNDING

- A. Provide equipment grounding conductor and connection for wiring devices, unless otherwise indicated. Tighten connection to comply with tightening torques specified in US Std 486A to assure permanent and effective grounds. Grounding continuity shall be maintained between devices and metallic raceway system.

3.4 TESTING

- A. Prior to energizing circuitry, test wiring devices for electrical continuity and short-circuits. Ensure proper polarity of connections is maintained. Subsequent to energization, test wiring devices to demonstrate compliance with requirements, by use of a Woodhead or equal continuity testing device.

3.5 IDENTIFICATION

- A. Mark the panelboard name and circuit # to which the device is connected, on each circuit wire, using phenolic tags.

END OF SECTION 26 27 26

(NO TEXT ON THIS PAGE)

SECTION 26 28 16 - DISCONNECT SWITCHES

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Extent of disconnect switch work and applications are indicated on the drawings.
- B. Applications of disconnect switches include non-fusible equipment disconnects, fusible equipment disconnects, fusible circuit protection, fusible service entrance equipment.
- C. Types of disconnect switches for this project:
 - 1. 120/240V, 2 pole fusible disconnect as indicated on the drawings, NEMA 4X construction when outdoors or as otherwise noted on drawings.

1.2 QUALITY ASSURANCE

- A. Disconnect switches shall be constructed to NEMA standard KS1-1983; shall be NEMA Type HD; shall be UL listed.

PART 2 – PRODUCTS

2.2 DISCONNECT SWITCHES

- A. All switches shall have switch blades which are fully visible in the “OFF” position when the switch door is open. All current- carrying parts shall be plated to resist corrosion and promote cool operation. Switches shall have removable arc suppressors where necessary to permit easy access to line-side lugs. Lugs shall be rated for both copper and aluminum conductors and shall be front-removable and UL listed for 75 degrees C conductors.
- B. Switching mechanism shall be quick-make, quick-break, with handle that is pad-lockable in the “OFF” position. The handle position shall indicate whether the switch is “ON” or “OFF”.
- C. Enclosure shall be suitable for the environment in which it is installed; or NEMA 4X outdoor weatherproof. Enclosure door shall have door interlock, with defeat mechanism, which prevents the door from opening when the switch is “ON”.
- D. Enclosure door shall have door interlock, with defeat mechanism, which prevents the door from opening when the switch is “ON”.

- E. All fusible switches shall accept Class R current limiting fuses and shall have rejection clips. UL listed short-circuit rating shall be 200,000 rms symmetrical amperes with Class R fuses.
- F. Ampere rating shall be as indicated on the drawings, or if not indicated as required for the circuit.
- G. Disconnect switches used for service entrances shall be UL listed for service entrance applications and shall have grounding provisions for service grounding and bonding.
- H. Disconnects used for motor safety and located on the load-side of VFDs shall have auxiliary contacts that shall be used to interlock the disconnect switch with the VFD; turn-off the VFD if the disconnect switch is opened.

2.3 MANUFACTURERS

- A. Manufacturers:
 - 1. Eaton/Cutler Hammer.
 - 2. Square D Company (Schneider Electric).
 - 3. Siemens.
 - 4. General Electric.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install safety switches where indicated on drawings, with ratings indicated.
- B. Install securely to walls, columns, or machine frames, and provide all necessary brackets, anchors, Unistrut channels, and hardware.
- C. Do not mount equipment directly to masonry or concrete walls. Provide support channels.
- D. Equip with class RK5 time-delay current limiting fuses if switch is fusible type.
- E. Terminate all conductors including equipment grounding conductor.
- F. Test switch mechanism to ensure smooth mechanical operation.
- G. Test interlock with VFDs.

END OF SECTION 26 28 16

SECTION 31 10 00 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.
- B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil," but in disturbed areas such as urban environments, the surface soil can be subsoil.
- C. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction.
- D. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction.
- E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.3 MATERIAL OWNERSHIP

- A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.4 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic-ways if required by Owner or authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 31 23 23 - Fill.
 - 1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed according to requirements in Section 01 50 00 – Temporary Facilities and Controls.
- C. Tree Removal: If tree removal is necessary to complete the Work, Contractor shall ensure compliance with IDNR mitigation requirements, included as an attachment in the project manual.
- D. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 EXISTING UTILITIES

- A. Locate, identify, and disconnect utilities indicated to be abandoned in place.

END OF SECTION 31 10 00

SECTION 31 23 16.13 - TRENCHING

PART 1 - GENERAL

- A. Excavate subsoil required for utilities.
- B. Remove lumped subsoil, boulders, and rock.
- C. Perform excavation in accordance with utility's requirements.
- D. Do not advance open trench more than 100 feet ahead of installed pipe.
- E. Cut trenches sufficiently wide, within established construction limits and/or temporary construction easements, to enable installation and allow inspection. Remove water or materials that interfere with work.
- F. Excavate bottom of trenches maximum 2 feet wider than outside diameter of pipe.
- G. Excavate trenches to depth indicated on drawings. Provide uniform and continuous bearing and support for bedding material and pipe.
- H. Do not interfere with 45 degree bearing splay of foundations.
- I. When project conditions permit, slope side walls of excavation starting 2 feet above top of pipe. When side walls cannot be sloped, provide sheeting and shoring to protect excavation as specified in this Project Manual. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by engineer until suitable material is encountered.
- J. Cut out soft areas of subgrade not capable of compaction in place. Backfill with subsoil fill and compact to density equal to or greater than requirements for subsequent backfill material.
- K. Trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- L. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by engineer.
- M. Remove excess subsoil not intended for reuse, from site.
- N. Provide means of ingress and egress from the trenches as required by applicable safety and health regulations.

(NO TEXT FOR THIS PAGE)

SECTION 31 23 19 – DEWATERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes construction dewatering.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by dewatering operations.
 - 1. Prevent surface water and subsurface or groundwater from entering excavations, from ponding on prepared subgrades, and from flooding site or surrounding area.
 - 2. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.
- B. Install dewatering system to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- C. Provide temporary grading to facilitate dewatering and control of surface water.
- D. Protect and maintain temporary erosion and sedimentation controls, which are specified in Section 31 25 00 "Erosion and Sedimentation Controls", during dewatering operations.

3.2 INSTALLATION

- A. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power, and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls.
 - 1. Space well points or wells at intervals required to provide sufficient dewatering.
 - 2. Use filters or other means to prevent pumping of fine sands or silts from the subsurface.
- B. Place dewatering system into operation to lower water levels before excavation below groundwater level.
- C. Provide sumps, sedimentation tanks, and other flow-control devices as required by authorities having jurisdiction.
- D. Provide standby equipment on-site, installed and available for immediate operation, to maintain dewatering on continuous basis if any part of system becomes inadequate or fails.

3.3 OPERATION

- A. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed or until dewatering is no longer required.
- B. Operate system to lower and control groundwater to permit excavation, construction of structures, and placement of fill materials on dry subgrades, Drain water-bearing strata above and below bottom of foundations, drains, sewers, and other excavations.
 - 1. Do not permit open-sump pumping that lead to loss of fines, soil piping, subgrade softening, and slope instability.
 - 2. Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations.
- C. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water and sediment in a manner that avoids inconvenience to others.
- D. Remove dewatering system from Project site on completion of dewatering. Plug or fill any well holes with bentonite grout or cut off and cap wells a minimum of 36 inches below overlying construction.

3.4 PROTECTION

- A. Protect and maintain dewatering system during dewatering operations.

1. Promptly repair damages to adjacent facilities caused by dewatering.

END OF SECTION 31 23 19

(NO TEXT FOR THIS PAGE)

SECTION 31 23 23 - FILL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Subsoil fill materials.
2. Coarse aggregate materials.
3. Fine aggregate materials.
4. Backfilling site structures to subgrade elevations.
5. Fill for over-excavation.

B. Related Sections:

1. Section 31 23 16.13 - Trenching.

1.2 REFERENCES

A. Indiana Department of Transportation (INDOT) Standard Specifications (latest edition).

B. ASTM International:

1. ASTM D698 - Standard Test Method for Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
4. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
5. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (shallow depth).

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures.

B. Materials Source: Submit name of imported fill materials suppliers.

C. Material Data: Submit gradation charts, sieve analysis for imported aggregate testing results.

D. Test Reports: Submit certified laboratory reports of all proposed backfill material. Test reports are to be dated within 6 months of backfill operation.

1.4 QUALITY ASSURANCE

- A. Furnish each imported material from single source throughout the Work.

PART 2 - NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify subdrainage, damp proofing, or waterproofing installation has been inspected.
- B. Verify structural ability of unsupported walls to support loads imposed by fill.

3.2 STOCKPILING

- A. Stockpile materials on site at locations approved by Owner.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate different aggregate materials with dividers or stockpile individually to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion and deterioration of materials.
- E. Stockpile Cleanup: Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

3.3 PREPARATION

- A. Compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with subsoil fill and compact to density equal to or greater than requirements for subsequent fill material.

3.4 BACKFILLING

- A. Backfill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.

- C. Place fill material in continuous layers and compact in accordance with INDOT standards or as described on the drawing details.
- D. Employ placement method that does not disturb or damage other work.
- E. Maintain optimum moisture content of backfill materials to attain required compaction density.
- F. Make gradual grade changes. Blend slope into level areas.
- G. Remove surplus backfill materials from site.
- H. Leave fill material stockpile areas free of excess fill materials.

3.5 TOLERANCES

- A. Section 01 40 00 - Quality Requirements.
- B. Top Surface of Backfilling Under Paved Areas: Plus or minus 0.5 inch from required elevations.
- C. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

3.6 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements.
- B. Perform laboratory material tests in accordance with ASTM D698.
- C. Perform in place compaction tests in accordance with the following:
 - 1. Density Tests: ASTM D1556, ASTM D2167, or ASTM D6938.
 - 2. Moisture Tests: ASTM D1557.
- D. When tests indicate Work does not meet specified requirements, remove Work, replace, and retest.
- E. Proof roll compacted fill surfaces under slabs-on-grade and paving.

3.7 PROTECTION OF FINISHED WORK

- A. Section 01 73 00 - Execution.
- B. Section 01 77 00 – Closeout Procedures.
- C. Reshape and re-compact fills subjected to vehicular traffic.

3.8 SCHEDULE

A. Fill to Correct Over-excavation:

1. Select fill, flush to required elevation, compact uniformly to 95 percent of maximum density.

3.9 COMPACTION EQUIPMENT

A. Equipment and Methods: Carry out all compaction with suitable approved equipment and methods.

1. Compact clay and other cohesive material with sheep's-foot rollers or similar equipment where practicable. Use handheld pneumatic tampers elsewhere for compaction of cohesive fill material.
2. Compact low cohesive soils with pneumatic-tire rollers or large vibratory equipment where practicable. Use small vibratory equipment elsewhere for compaction of cohesionless fill material.
3. Do not use heavy compaction equipment over pipelines or other structures unless the depth of fill is sufficient to adequately distribute the load.

3.10 FINISH GRADING

A. Final Contours: Perform finish grading and blend into conformation with remaining natural ground surfaces.

1. Leave all finished grading surfaces smooth and firm to drain.
2. Bring finish grades to elevations within plus or minus 0.10 foot of existing or contours shown.

B. Surface Drainage: Perform grading outside of building or structure lines in a manner to prevent accumulation of water within the area. Where necessary or where shown, extend finish grading to ensure that water will be carried to drainage ditches, and the site area left smooth and free from depressions holding water

3.11 RESPONSIBILITY FOR AFTERSSETTLEMENT

A. Aftersettlement Responsibility: Take responsibility for correcting any depression which may develop in backfilled areas from settlement within one year after the work is fully completed. Provide as needed, backfill material, pavement base replacement, permanent pavement, sidewalk, curb and driveway repair or replacement, and lawn replacement, and perform the necessary reconditioning and restoration work to bring such depressed areas to proper grade as approved.

3.12 INSPECTION AND TESTING OF FILLING

- A. Sampling and Testing: Engage an independent testing laboratory to perform all sampling, testing, and laboratory analysis in accordance with the appropriate ASTM Standard Specification. Provide compaction testing of all in-place backfill after every 400 feet of pipe installation. Record in-place fill compaction values at 50-foot intervals. Additionally, record compaction values at a minimum of 10 feet and 5 feet below final surface elevation and at the surface at each location. Record in-place fill compaction values at a minimum of 10 feet and 5 feet below final surface elevation and at the surface at all road/driveway crossings. Record in-place fill compaction values a minimum of 10 feet and 5 feet below final surface elevation and at the surface at 25-foot intervals through roadway/parking areas. Submit copies of all fill tests to the Engineer. If testing reveals non-compliance with Contract requirements, all additional testing and placement of adequately compacted fill will be made at the Contractor's expense.
- B. Correction of Work: Correct any areas of unsatisfactory compaction by removal and replacement, or by scarifying, aerating, or sprinkling as needed and recompaction in place prior to placement of a new lift.

END OF SECTION 31 23 23

(NO TEXT FOR THIS PAGE)

SECTION 31 25 00 – EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The following Sections and general provisions apply to this Section.
 - 1. 31 10 00 "Site Clearing".
 - 2. 31 23 16.13 "Trenching".
 - 3. 31 23 23 "Fill".

1.2 SUMMARY

- A. Section includes Temporary control measures as shown on the plans or as ordered by the Owner during the life of the Contract to control water pollution, soil, erosion, and siltation using berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods. Follow Storm Water Pollution Prevention Plan local guidelines.

1.3 DESCRIPTION

- A. This item shall consist of temporary control measures as shown on the Drawings or as ordered by the Owner during the life of the Contract to control water pollution, soil erosion, and siltation using berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods.
- B. Temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this Contract to the extent practical to assure economical, effective, and continuous erosion control throughout construction.
- C. Temporary control may include work outside the construction limits such as borrow pit operations, equipment, and material storage sites, waste areas, and temporary plant sites.

1.4 SUBMITTALS

- A. Submit Erosion Control Plan Product Cut Sheets to Engineer for review and approval.

- B. Prior to start of construction, Contractor shall submit schedules for accomplishment of temporary and permanent erosion control work, as are applicable for clearing and grubbing, grading, and construction. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operations for the applicable construction have been accepted by the Engineer.

PART 2 - PRODUCTS

2.1 MULCHES

- A. Mulches may be hay, straw, fiber mats, netting, bark, wood chips, or other suitable material reasonably clean and free of noxious weeds and deleterious materials.

2.2 STRAW BALE DIKE

- A. Straw bale dikes shall be used as needed to prevent soil erosion at all stream or ditch crossings.

2.3 OTHER

- A. All other materials shall meet commercial grade standards and shall be approved by the engineer before being incorporated into the project.

PART 3 - EXECUTION

3.1 GENERAL

- A. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.
- B. The Contractor shall be responsible for compliance to the extent that construction practices, construction operations, and construction work are involved.

3.2 AUTHORITY OF OWNER

- A. The Owner and the Owner's authorized Representatives have the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, to limit the surface area of erodible earth material exposed by excavation, borrow, and fill operations, and to direct the Contractor to provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams.

3.3 CONSTRUCTION DETAILS

- A. The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the accepted schedule. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding, mulching, and other specified slope protection work in stages as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design state; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices but are not associated with permanent control features on the project.
- B. Where erosion is likely to be a problem, clearing and grubbing operations should be scheduled and performed so that grading operations and permanent erosion control features can follow immediately thereafter if the project conditions permit; otherwise, temporary erosion control measures may be required between successive construction stages.
- C. The Owner will limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress, commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent control measures current in accordance with the accepted schedule. Should seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified.
- D. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or as ordered by the Owner, such work shall be performed by the Contractor at his/her own expense.
- E. The Owner may increase or decrease the area of erodible earth material to be exposed at one time as determined by analysis of project conditions.
- F. The erosion control features installed by the Contractor shall be acceptably maintained by the Contractor during the construction period.

- G. Whenever construction equipment must cross watercourses at frequent intervals, and such crossings will adversely affect the sediment levels, temporary structures must be provided and not alter watercourse flow or sedimentation
- H. Pollutants including fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into or near rivers, streams, and impoundments or into natural or manmade channels leading thereto.

END OF SECTION 31 25 00

SECTION 33 01 30.14 – LOW PRESSURE SEWER AND GRINDER PUMP TESTING

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. List of testing equipment for sanitary gravity sewers, force mains, and manholes
2. Operating procedures for testing equipment.

1.2 REFERENCE STANDARDS

A. ASTM International

1. ASTM – F1417 Standard Practice for Installation Acceptance of Plastic Non-pressure Sewer Lines Using Low-Pressure Air

PART 2 – TESTING EQUIPMENT

2.1 LOW PRESSURE SEWER - AIR TESTING

A. Low Pressure Air Testing Equipment:

1. Plugs
2. Compressor
3. Piping for air lines
4. Pressure gauge

B. Hydrostatic Testing Equipment:

1. Hydrostatic water pump
2. Pneumatic or mechanical plugs
3. Hoses
4. Pressure gauge

C. Valve Testing Equipment

1. Hydrostatic water pump
2. Pneumatic or mechanical plugs
3. Hoses
4. Tools for opening/closing valves

2.2 PRESSURE TESTING OF LOW PRESSURE SEWER

- A. Pressure test sections of DR 11 sewer according to Indiana State Code 327.
- B. Completely backfill all harnessed sections of buried piping before such sections are tested.
- C. Pressure test buried or concealed pipelines for leakage by maintaining the fluid in the pipe at the specified pressure for a minimum period of 2 hours and no more than 8 hours.
- D. Pressure test the piping for leakage as a whole or in sections, valved or bulkheaded at the ends. Apply the specified pressure to the piping through a tap in the pipe by means of a hand pump or other approved method. Do not use air for testing.

- E. Test the piping at a minimum of 100 psi, or 1.5 times the upstream pump shut-off head as determined from the pump manufacturer's performance curves, whichever is greater.
- F. Allowable leakage: stop all visible leakage. Do not allow leakage for any piping, as determined by the above test, to exceed the allowable leakage of whichever guideline is more stringent of the following:
- G. As given by the following formula in section 5.2 of AWWA C600:

$$L = (S \times D \times (P)^{1/2}) / 148,000$$

in which L is the allowable leakage in gallons per hour, S is the length of force main tested in feet, D is nominal diameter of the pipe in inches and P is the average test pressure in psi gauge

2.4 VALVE TESTING

Operate valves in the section under test through several complete cycles of closing and opening. Have the test pressure for each valve, when in the closed position, applied to one side of the valve only. Test each end of the valve in this manner.

- A. Test each valve in the same test pressure as that specified for the pipe in which the valve is installed.
 - 1. Stop all external and internal leakage through the valves.
 - 2. Stop all valve movement or structural distress.

2.5 GRINDER PUMP UNIT TESTING

A. TESTING

- 1. Test each unit on clear water through minimum of four complete cycles under supervision of manufacturer's representative and in presence of Engineer.
- 2. Demonstrate that system performance, control functions, and alarms meet specified requirements.

END OF SECTION 33 01 30.14

SECTION 33 05 07.13 - UTILITY DIRECTIONAL DRILLING

- A. The project superintendent on the horizontal directional drilling (HDD) portion of the work shall furnish satisfactory evidence that he has a minimum of five (5) years of HDD experience and shall have worked on at least two (2) HDD projects in similar ground conditions using similar equipment as required on this project. The machine operator shall have attended training sessions on the equipment to be utilized and shall have at least three (3) years of HDD experience and shall have operated similar machinery on at least one (1) HDD project using similar equipment.
- B. Check selected pipe material for conformance to contract specifications and to certification tests.
- C. Check Manufacturer's requirements for proper pipe handling and storage.
- D. Review pipe installation procedure with the RPR.
- E. Joining Systems
 - 1. If applicable, pipes shall be jointed to one another and to polyethylene fittings by thermal butt-fusion.
 - 2. The tensile strength at yield of the butt-fusion joints shall not be less than the pipe. A specimen of pipe cut across the butt-fusion shall be tested.
- F. Tests
 - 1. General - Tests for compliance with this specification shall be made as specified herein and according to the applicable ASTM specifications. A certificate of compliance with these specifications, along with a report of each test, shall be furnished by the manufacturer for all material furnished under this specification. In addition, the purchaser may, at his own expense, witness inspection and test of the materials.
 - 2. Tensile properties - The tensile strength, yield strength, elongation, and elastic modulus of the pipe shall be determined based on the pipe material.
 - 3. Melt Index - The melt index of the polyethylene resin shall be determined in accordance with ASTM D1238 and shall be equal, or between 0.1 g/10 min. and 1.0 g/10 min.
 - 4. Density - The density of the base polyethylene resin shall be determined in accordance with ASTM D1505 and be equal or between 0.941 g/cc and 0.055 g/cc.
 - 5. Environmental Stress Cracking Resistance - The material shall be tested in accordance with ASTM D1693, condition B. The test reagent shall be igepal co-630 in 25 percent solution by volume. The specimens shall be in the solution not less than 100 hours before reaching a 50 percent failure point (f50).
 - 6. Identify the percent error of the electronic tracking equipment.
 - 7. The completed sanitary sewer must pass a laser test.
- G. Rejection
 - 1. Polyethylene pipe and fittings may be rejected for failure to meet any of the requirements of this specification.
- H. The polyethylene piping and fittings shall be installed in accordance with ASTM D2774, underground installation of thermoplastic pressure piping, and with the guidelines and recommendations of the manufacturer.

- I. The pipe shall be installed in the location to the line and grade as shown in the drawings with the pipe joints neatly fused together. The sanitary sewer shall be installed at twice the minimum slope of a gravity system per 327 IAC 3-6-12.
- J. Vertical drilled sight holes are required along the path of the sanitary sewer every 30-50 feet to physically check the depth of the auger head as it passes through the hole to determine the grade accuracy.
- K. All materials delivered to the project for work on the project shall be neatly piled. Excavated materials which are not removed from the immediate site of the work shall be kept trimmed up so as to cause as little inconvenience to the owners of neighboring property and to the public, as possible. Gutters, driveways, and street crossings shall be kept clear except when the latter are unavoidably obstructed by open trench.
- L. Excavated material, including but not limited to, pipe, pavement, concrete, and concrete rubble, and masonry units, which is unsuitable for backfill and all excavated material which has not been used for backfill shall, upon completion of the project, be removed from the site of the work by the contractor at his own expense.
- M. Pipe crossing alignment shall be laid out by the surveyor confirming accurate horizontal distances, either physically measured or shot by electronic distance measurement. Entry and exit points shall be located and marked with survey hubs or markers.
- N. The drill and pipe staging areas shall be kept neat and orderly and disturb as little area as possible.
- O. A drilling fluid shall be used in connection with the installation of the proposed pipe into the hole. Prior to installation of the pipe into the hole, the contractor should determine whether a cement or bentonite slurry shall be used as a supplement. If sub-surface conditions contain predominantly clayey soils, then the bentonite slurry should be used. Polymers can be used, if appropriate.
- P. Mud and slurry material displaced by the pipe during installation and during drilling operations shall be deposited in watertight containers and hauled off by a vacuum truck to a certified receiving site.
- Q. Submit a detailed inspection/testing log to idem for the directional drilling installation. The log shall provide the horizontal and vertical coordinates of the auger head as measured in the sight borings, demonstrating that an acceptable and consistent grade was achieved.

SECTION 33 05 23 - JACKING, AUGURING AND MINING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Pipeline installation in casing pipe beneath highways, railroads and other structures may be installed by jacking and auguring or by jacking and mining.
- B. Related Work Specified in Other Sections Includes, but is Not Limited to, the Following:
 - 1. Section 31 23 16 - Excavation

1.2 REFERENCES

- A. Codes and standards referred to in this Section are:
 - 1. ASTM A 139 - Specification for Electric-Fusion (Arc) -Welded Steel Pipe (NPS in 4 in. and over)
 - 2. OSHA PL-91-596 - Occupational Safety Health Act of 1970 Public Law 91-596

1.3 SUBMITTALS

- A. Provide all submittals, including the following, as specified in Division 2.
 - 1. Shop drawings of the jacking pipe, jacking frame, jacking head, reaction blocks, sheeting, including design calculations and the complete jacking installation.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and handle all products and materials as specified in Division 2 (and as follows:)

PART 2 PRODUCTS

2.1 MATERIALS

- A. General: Use one of the following for casing piping.
 - 1. Welded steel pipe, meeting the requirements of the CSX railroad and as shown on the plans.

- B. Fill Material: Use fill material consisting of 1-1/4 pounds of Bentonite per gallon of water during jacking to fill any voids between pipe and the earth.

PART 3 EXECUTION

3.1 INSTALLATION

- A. General: Install all steel casing pipe and specified carrier pipe in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1.
- B. Casing Spacers:
 - 1. Secure timber or polymer casing spacers to the carrier pipe at 6-foot intervals inside the casing pipe. Arrange the spacers to provide support for and to prevent floatation or shifting of the carrier pipe.
 - 2. Construct timber casing spacers of pressure treated timbers banded to the carrier pipe with stainless steel bands as shown.
 - 3. Provide polymer casing spacers comprised of a shell of 14-gauge (minimum) Type 304 stainless steel with runners of ultra-high molecular weight polymer as manufactured by Cascade Waterworks Manufacturing Company, Yorkville, IL, or equal. Line the shell with polyvinyl chloride and support the runners with Type 304 stainless steel risers. Provide the number of runners as recommended by the manufacturer.
- C. Conform all operations and materials to the regulations of the highway department, railroad or other agency having jurisdiction over the crossing. Obtain the approval of all materials and methods from the agency having jurisdiction over the crossing prior to construction.
- D. Rails and Skids: Embed timber or steel rails and skids in Class D concrete. Place and set rails and skids inside the casing pipe to uniformly support the carrier pipe at the required line and grade. For bell or other type carrier pipe joints of greater diameter than the carrier pipe barrel, arrange skids and rails to conform to the pipe joint diameter. After the carrier pipe has been placed, fill the remainder of the annular space between the casing pipe and the carrier pipe with cement grout and seal the ends of the casing pipe with brick masonry bulkheads unless otherwise shown, specified, or directed. Brace the carrier pipe to prevent floatation or shifting during grouting. Provide concrete in conformance with Section 03 31 00 "Cast-In-Place Concrete".
- E. Auguring: Conduct auguring with the proper equipment and procedure such that the carrier pipe and the casing pipe can be installed to the grades specified without disturbing the adjacent earth. Submit all equipment and procedures for prior approval.

- F. Hand Mining: Conduct hand mining only in casings that are sufficiently large enough to permit such operation. Provide adequate fresh air supply within the casing pipe and conduct all operations in accordance with the requirements of the U.S. Department of Labor Safety and Health Regulations for Construction promulgated under the Occupational Safety and Health Act 7 1970 (PL-91-596).
- G. Jacking Pit: Make the jacking pit of adequate length to provide room for the jacking frame, the jacking head, the reaction blocks, the jacks, auger rig, and the jacking pipe. Make the pit sufficiently wide to allow ample working space on each side of the jacking frame. Make the depth of the pit such that the invert of the pipe, when placed on the guide frame, is at the elevation desired for the completed line. Provide excavation in conformance with Section 31 23 16 – “Excavation”.
- H. Sheeting: Sheet the jacking pit tightly and keep dry at all times.
- I. Jacking Frame: Use a jacking frame that applies a uniform pressure over the entire pipe wall area of the pipe to be jacked.
- J. Reaction Blocks: Use reaction blocks designed to carry the thrust of the jacks to the soil without excessive soil deflection and in such a manner as to avoid any disturbance of adjacent structures or utilities.
- K. Operation: Use hydraulic jacks in the jacking operation. Use extreme care to hold the pipe to exact line and grade. Advance the excavation at the heading manually or with an auger. Do not allow the advance to exceed one foot ahead of the casing pipe. Make every effort to avoid loss of earth outside the casing.
- L. Safety Railing: Provide a safety railing all around the top of the pit at all times.

END OF SECTION 33 05 23

(NO TEXT FOR THIS PAGE)

SECTION 33 31 15 - SANITARY LATERALS

PART 1 - GENERAL

1.1 SUMMARY

Work under this Section includes, but is not limited to, the installation and testing of low pressure sanitary sewer pipe laterals, fittings, and connections.

1.2 RELATED WORK:

- A. Section 31 23 16.13 – Trenching
- B. Section 33 33 00 – Low Pressure Utility Sewerage

1.3 QUALITY ASSURANCE

- A. All similar components shall be manufactured and furnished by one manufacturer unless specifically approved by ENGINEER in writing.

1.4 REFERENCE STANDARDS

- A. ASTM International:
 1. ASTM D2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
 2. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
 3. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
 4. ASTM F714 – Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) based on Outside Diameter
 5. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

1.5 SUBMITTALS

- A. CONTRACTOR shall submit shop drawings in accordance with Section 01 33 00 – Submittal Procedures for the pipe and pipe fittings furnished herein. Shop Drawing submittals shall include descriptive literature, pressure ratings, certification of all applicable ASTM standards, design calculations, and manufacturer’s installation instructions.

1.6 CLOSEOUT SUBMITTALS

- A. Substantial completion shall be defined as the completion of all requirements necessary to enable the work to be performed for the purpose for which it was constructed. This shall include, but not be limited to, all necessary testing as required by the laws and regulations of OWNER and these Contract Documents.

PART 2 - PRODUCTS

2.1 GRAVITY SERVICE LATERAL

A. Definition

1. The gravity service lateral is defined as the pipe connecting from the existing sanitary discharge point of the said residence to the residence grinder pump unit station.

B. Pipe

1. Pipe shall be homogenous throughout and free of visible cracks, holes, foreign inclusions, and other defects. Unless otherwise shown or indicated, pipe shall be uniform in color, opacity, density, and other physical properties.
2. 4 in. PVC schedule 40 solid wall with minimum ring stiffness of 46 psi.

B. Fittings

1. Gasketed fittings shall comply with ASTM D3034.
2. A stand pipe with a cleanout will need to be installed for clean-out purposes which each gravity lateral.

C. Joints

1. Provide bell and spigot joints. Bell shall consist of an integral wall section to hold securely in place.
2. Provide elastomeric gaskets complying with ASTM F477.

2.2 FORCED SEWER MAIN SERVICE LATERAL

A. Definition

1. The forced sewer main service lateral is defined as the pipe connecting the grinder pump station unit to the low-pressure sewer main.

B. Approved Equal

1. Contractor will be responsible for additional costs associated with selecting a force main lateral assembly kit that is not the Environmental One Corporation, Uni-Lateral Stainless Steel Forced Sewer Main Service Lateral Kits DR HDPE Pipe. The decision to accept the alternate force main lateral assembly kit is the responsibility of the ENGINEER.

2. Contractor will be responsible for additional costs and provide full product information that is compliant with the specifications herein should contractor develop their own lateral assembly kit. The decision to accept the alternate kit assembled by CONTRACTOR is the responsibility of the ENGINEER.

C. Pipe

1. All plastic fitting components are to be in compliance with applicable ASTM standards.
2. All pipe connections shall be made using compression fittings connections including a Buna-N O-ring for sealing to the outside diameter of the pipe. A split-collect locking device shall be integrated into all pipe connection fittings to securely restrain the pipe from hydraulic pressure and external loading caused by shifting and settling.

D. Stainless Steel Uni-Lateral Curb Stop/Check Valve Assembly

1. The Uni-Lateral shall be pressure-tight in both directions. The ball valve actuator shall include position stop features at the fully opened and closed positions. The curb stop/check valve assembly shall be designed to withstand a working pressure of 235 psi.

2. The stainless steel check valve shall be integral with the curb stop valve. The check valve will provide a full-ported 1-1/4" passageway and shall introduce minimal friction loss as the maximum rated flow. The flapper hinge design shall provide a maximum degree of freedom and ensure seating at low back pressure.

E. Curb Boxes

1. Curb boxes shall be constructed of ABS, conforming to ASTM-D 1788. Lid top casting shall be cast iron, conforming to n ASTM A-48 Class 25 providing magnetic detectability, and be painted black. The lid shall have the word "sewer" cast into it. All components shall be inherently corrosion resistant to ensure durability in the ground. Curb boxes shall provide height adjustment downward (shorter) from their normal height.

F. High Density Polyethylene Pipe (Supplied by Others):

1. Pipe shall have a working pressure of 160 psi minimum and shall be classified DR per ASTM D 3035.

G. Pipe Dimensions

1. The SDR (Standard Dimension Ratio) of the pipe supplied shall be as specified by DR 11.

PART 3 - EXECUTION**3.1 MATERIAL STORAGE**

- A. Pipe shall be stored on clean, level ground to prevent undue scratching or gouging of the pipe. If the pipe must be stacked for storage, such stacking should be in accordance with the pipe manufacturer's recommendations. The pipe should be handled in such a manner that it is not damaged by being dragged over sharp objects or cut by chokers or lifting equipment.
- B. Segments of pipe having cuts or gouges in excess of 10 percent of the wall thickness of the pipe shall be cut out and removed. The undamaged portions of the pipe shall be rejoined using the butt fusion joining method. Sections of polyethylene pipe should be joined into continuous lengths on the job site above ground. The joining method shall be the butt-fusion method and shall be performed in strict accordance with the pipe manufacturer's recommendations. The butt-fusion equipment used in the joining procedure shall be capable of meeting all conditions recommended by the pipe manufacturer, including, but not limited to, fusion temperature, alignment, and fusion pressure.
- C. Fused segments of pipe shall be handled so as to avoid damage to the pipe. When lifting fused sections of pipe, chains or cable-type chokers should be avoided. Care should be exercised to avoid cutting or gouging the pipe.

3.2 INSTALLATION of GRAVITY SERVICE LATERAL

- A. CONTRACTOR is to coordinate with homeowner and/or subcontractor to locate existing utilities and/or existing septic sewer infrastructure on parcel.
- B. CONTRACTOR shall layout lateral alignment to avoid conflicts with existing utilities and connect into sanitary discharge point of said residence.
- C. Maintain four (4) feet of cover from ground elevation to top of pipe.
- D. Maintain minimum separation distance of five (5) feet between sanitary laterals.

3.3 INSTALLATION OF FORCE MAIN SERVICE LATERAL

- A. Assemble the compression fittings according to the fitting manufacturer's recommendation.
- B. The trench and trench bottom should be constructed in accordance with ASTM D 2321. Embedment materials should be Class 1, Class II or Class III materials as defined in ASTM D 2321. The use of Class IV and or Class V materials for embedment requires approval of the SPECIFYING ENGINEER. Bedding of the pipe shall be performed in accordance with ASTM D 2321. Compaction should be as specified in ASTM 2321.
- C. Haunching and initial backfill should be as specified in ASTM 2321 using Class I, Class II, or Class III materials. Materials used and compaction shall be as specified by the SPECIFYING ENGINEER. IN cases where a compaction of 85 Standard Proctor Density is not attainable, the SPECIFYING ENGINEER may wish to increase the SDR of the pipe to provide adequate stiffness. ASTM D2321 sections titled "Minimum Cover for Loam Application," "Use of Compaction Equipment" and "Removal of Trench Protection" apply.

3.4 LOCATION OF SERVICE CONNECTIONS

- A. The Project Drawings indicate 1.25" service connections with a lateral assembly and vault for the low-pressure systems to service the various lots and properties located within the project area.
- B. Service connection laterals shall be constructed as shown on the Contract Drawings and as described in these specifications.
- C. CONTRACTOR shall contact each individual property owner as to the desired location of the service connection.
- D. A written log of location and depth for the lateral assemblies shall be kept and transmitted to CONSTRUCTION INSPECTOR with as-built data. This data shall include the horizontal length from the main line to the gravity service lateral tie-in point.
- E. CONTRACTOR shall complete the homeowner contact form as approved by OWNER. Homeowner contact form shall record name of property owner, address of property, date and time of contact, remarks in regard to lateral location, including a sketch showing the

desired location signed by the property owner, and any other remarks pertinent to the property.

3.5 LOCATING (TRACER) WIRE

- A. Tracer wire for open-cut installation of low pressure sewers shall be Copperhead Direct Burial #12 AWG Solid (0.0808" diameter), steel core soft drawn high strength, 380# average tensile break load, with 30 mil high molecular weight-high density yellow polyethylene jacket complying with ASTM D-1248, 30 volt rating, or approved equal. Tracer wire for installation of low pressure sewers by Horizontal Directional Drilling shall be per Section 35 05 07.13 – Utility Directional Drilling.

END OF SECTION 33 31 15

(NO TEXT FOR THIS PAGE)

SECTION 33 32 16.13 – GRINDER PUMP STATION UNIT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. On-lot sewage grinder pumping units.
 - 2. Control Panels

1.2 REFERENCE STANDARDS

- A. ASTM International
 - 1. ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
- B. National Electrical Manufacturers Association
 - 1. NEMA 250 – Enclosures for Electrical Equipment (1000 Volts Maximum)

1.3 SUBMITTALS

- A. Shop drawings shall be submitted in accordance with Section 01 33 00 Submittal Procedures and shall include manufacturers catalog cuts, material information, and certifications of proof of compliance with all applicable standards.
- B. After receipt of notice to proceed, the MANUFACTURER shall furnish a minimum of six sets of shop drawings detailing the equipment to be furnished including dimensional data and materials of construction. The ENGINEER shall promptly review this data and return the reviewed submittal. Upon receipt of reviewed shop drawings with no requested changes, the manufacturer shall proceed immediately with fabrication of the equipment.

1.4 QUALIFICATIONS

- A. The equipment furnished hereunder shall be the product of a company experienced in the design and manufacture of grinder pumps specifically designed for use in low pressure systems. All manufacturers proposing equipment for this project shall have at least 10 years of experience in the design and manufacture of units of identical size(s) and performance to the specified units.
- B. All manufacturers proposing equipment for this project must also have not less than 5 successful installations of low pressure sewer systems utilizing grinder pumps of like type to the grinder pumps specified herein. An installation is defined as a minimum of 25 pumps discharging into a common force main which forms a low pressure sewer system.
- C. The CONTRACTOR (supplier) proposing alternate equipment shall also submit, as part of the bid schedule, an installation list with contact person(s), phone number(s) and

date(s) of at least 10 installations of the type of pump specified herein that have been in operation for at least 10 years.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and handle all products and materials as specified in Division 2 (and as follows:)
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Storage:
 - i. Store materials according to manufacturer instructions.
 - ii. Do not store materials on private property without written permission of property owner.
 - iii. Do not stack pipe higher than recommended by pipe manufacturer.

PART 2 - PRODUCTS

2.1 GRINDER PUMPS

- A. Manufacturers:
 - 1. Environmental One Corporation
 - 2. Approved Equal
 - a. Contractor will be responsible for additional costs associated with selecting a grinder pump that is not the specified Environmental One Corporation, Model DH071 package.
 - b. Associated costs listed above shall be as defined in Part 3, B.
- B. Description: The pump shall be integral, vertical rotor, motor driven, solids handling pump of the progressing cavity type with a single mechanical seal.
- C. Pump
 - 1. Double radial O-ring seals are required at all casting joints to minimize corrosion and create a protective barrier.
 - 2. Rotor shall be through-hardened, highly polished, precipitation hardened stainless steel
 - 3. Stator shall be of a specifically compounded ethylene propylene synthetic elastomer.
 - a. Material shall be suitable for domestic wastewater service.
 - 4. Physical properties shall include high tear and abrasion resistance, grease resistance, water and detergent resistance, temperature stability, excellent aging properties, and outstanding wear resistance.
- D. Materials

1. All pump castings shall be cast iron, fully epoxy coated to 8-10 mil nominal dry thickness, wet applied.
2. Buna-N is not acceptable as a stator material because it does not exhibit the properties as outlined above and required for wastewater service.

E. Grinder

1. Grinder shall be placed immediately below the pumping elements and shall be direct-driven by a single, one-piece motor shaft.
2. Grinder impeller (cutter wheel) assembly shall be securely fastened to the pump motor shaft by means of a threaded connection attaching the grinder impeller to the motor shaft.
3. Attachment by means of pins or keys will not be acceptable.
4. Grinder impeller shall be a one-piece, 4140 cutter wheel of the rotating type with inductively hardened cutter teeth.
5. Cutter teeth shall be inductively hardened to Rockwell 50 – 60c for abrasion resistance.
6. Shredder ring shall be of the stationary type and the material shall be white cast iron.
7. The teeth shall be ground into the material to achieve effective grinding.
8. The shredder ring shall have a staggered tooth pattern with only one edge engaged at a time, maximizing the cutting torque.
9. Grinder shall be constructed so as to minimize clogging and jamming under all normal operating conditions including starting.
 - a. Grinder shall be positioned in such a way that solids are fed in an upward flow direction.
 - b. The maximum flow rate through the cutting mechanism must not exceed 4 feet per second. This is a critical design element to minimize jamming and as such must be adhered to.
 - c. Inlet shroud shall have a diameter of no less than 5 inches. Inlet shrouds that are less than 5 inches in diameter will not be accepted due to their inability to maintain the specified 4 feet per second maximum inlet velocity which by design prevents unnecessary jamming of the cutter mechanism and minimizes blinding of the pump by large objects that block the inlet shroud.
 - d. Impeller mechanism must rotate at a nominal speed of no greater than 1800 rpm.
10. Grinder shall be capable of reducing all components in normal domestic sewage, including a reasonable amount of “foreign objects,” such as paper, wood, plastic, glass, wipes, rubber and the like, to finely-divided particles which will pass freely through the passages of the pump and the 1-1/4" diameter stainless steel discharge piping.

F. Electric Motor

1. Motor shall be a 1 HP, 1725 RPM, 240 Volt 60 Hertz, 1 Phase, capacitor start, ball bearing, air-cooled induction type with Class F installation, low starting current not to exceed 30 amperes and high starting torque of 8.4 foot pounds.
2. Motor shall be press-fit into the casting for better heat transfer and longer winding life.
3. Motor to incorporate an automatic-reset, integral thermal overload protector.
4. Non-capacitor start motors or permanent split capacitor motors will not be accepted because of their reduced starting torque and consequent diminished grinding capability.
5. Wet portion of the motor armature must be 300 Series stainless.
6. Oil-filled motors will not be accepted.

- G. Mechanical Seal
1. Pump/core shall be provided with a mechanical shaft seal to prevent leakage between the motor and pump.
 2. Seal shall have a stationary ceramic seat and carbon rotating surface with faces precision lapped and held in position by a stainless steel spring.
- H. Tank and Integral Accessway: (Model DH071) High Density Polyethylene Construction
1. Tank shall be a Wetwell/Drywell design made of high density polyethylene, with a grade selected to provide the necessary environmental stress cracking resistance.
 2. Corrugated sections are to be made of a double wall construction with the internal wall being generally smooth to promote scouring.
 - a. Corrugations of the outside wall are to be a minimum amplitude of 1-1/2" to provide necessary transverse stiffness.
 3. Any incidental sections of a single wall construction are to be 0.250" thick (minimum).
 4. All seams created during tank construction are to be thermally welded and factory tested for leak tightness.
 5. Tank wall and bottom must withstand the pressure exerted by saturated soil loading at maximum burial depth.
 6. All station components must function normally when exposed to 150 percent of the maximum external soil and hydrostatic pressure.
 7. The tank shall be furnished with one EPDM grommet fitting to accept a 4.50" OD DWV or Schedule 40 pipe.
 8. Tank capacities shall be as shown on the contract drawings.
 9. Drywell accessway shall be an integral extension of the Wetwell assembly and shall include a lockable cover assembly providing low profile mounting and watertight capability.
 - a. Accessway design and construction shall enable field adjustment of the station height in increments of 4" or less without the use of any adhesives or sealants requiring cure time before installation can be completed.
 10. Station shall have all necessary penetrations molded in and factory sealed.
 11. No field penetrations will be acceptable.
 12. Discharge piping
 - a. Constructed of 304 stainless steel.
 - b. Discharge shall terminate outside the accessway bulkhead with a stainless steel, 1-1/4" Female NPT fitting.
 - c. Discharge piping shall include a stainless steel ball valve rated for 235 psi WOG
 - 1) PVC ball valves or brass ball/gate will not be accepted.
 13. Bulkhead penetration shall be factory installed and warranted by the manufacturer to be watertight.
 14. Accessway shall include a single NEMA 6P Electrical Quick Disconnect (EQD) for all power and control functions, factory installed with accessway penetrations warranted by the manufacturer to be watertight.
 - a. EQD will be supplied with 32', 25' of useable Electrical Supply Cable (ESC) outside the station, to connect to the alarm panel.
 - b. ESC shall be installed in the basin by the manufacturer.
 - c. Field assembly of the ESC into the basin is not acceptable because of potential workmanship issues.

- d. EQD shall require no tools for connecting, seal against water before the electrical connection is made, and include radial seals to assure a watertight seal regardless of tightening torque.
 - e. Plug-type connections of the power cable onto the pump housing will not be acceptable due to the potential for leaks and electrical shorts.
 - f. Junction box shall not be permitted in the accessway due to the large number of potential leak points.
 - g. EQD shall be so designed to be conducive to field wiring as required. The accessway shall also include an integral 2-inch vent to prevent sewage gases from accumulating in the tank.
- I. Check Valve
1. Pump discharge shall be equipped with a factory installed, gravity operated, flapper-type integral check valve built into the stainless steel discharge piping.
 2. Provide a full-ported passageway when open, and shall introduce a friction loss of less than 6 inches of water at maximum rated flow.
 3. Moving parts will be made of a 300 Series stainless steel and fabric reinforced synthetic elastomer to ensure corrosion resistance, dimensional stability, and fatigue strength.
 4. A nonmetallic hinge shall be an integral part of the flapper assembly providing a maximum degree of freedom to assure seating even at a very low back-pressure.
 5. Valve body shall be an injection molded part made of an engineered thermoplastic resin.
 6. Rated for continuous operating pressure of 235 psi.
 7. Ball-type check valves are unacceptable due to their limited sealing capacity in slurry applications.
- J. Anti-Siphon Valve
1. Pump discharge shall be equipped with a factory-installed, gravity-operated, flapper-type integral anti-siphon valve built into the stainless steel discharge piping.
 2. Moving parts will be made of 300 Series stainless steel and fabric-reinforced synthetic elastomer to ensure corrosion resistance, dimensional stability, and fatigue strength. A nonmetallic hinge shall be an integral part of the flapper assembly, providing a maximum degree of freedom to ensure proper operation even at a very low pressure.
 3. Valve body shall be injection-molded from an engineered thermoplastic resin.
 4. Holes or ports in the discharge piping are not acceptable.
 5. Anti-siphon port diameter shall be no less than 60% of the inside diameter of the pump discharge piping.
- K. Core Unit
1. Grinder pump station shall have a cartridge type, easily removable core assembly consisting of pump, motor, grinder, all motor controls, check valve, anti-siphon valve, level controls, electrical quick disconnect and wiring.
 2. Shall be installed in the basin by the manufacturer.
 3. Core unit shall seal to the tank deck with a stainless steel latch assembly.
 4. Latch assembly must be actuated utilizing a single quick release mechanism requiring no more than a half turn of a wrench
 5. Watertight integrity of each core unit shall be established by a 100 percent factory test at a minimum of 5 PSIG.

L. Controls

1. All necessary motor starting controls shall be located in the cast iron enclosure of the core unit secured by stainless steel fasteners.
2. Wastewater level sensing controls shall be housed in a separate enclosure from motor starting control.
3. Level Sensor Housing
 - a. Sealed via a radial type seal; solvents or glues are not acceptable.
 - b. Be integrally attached to pump assembly so that it may be removed from the station with the pump and in such a way as to minimize the potential for the accumulation of grease and debris accumulation, etc.
 - c. Must be a high-impact thermoplastic copolymer over-molded with a thermoplastic elastomer. The use of PVC for the level sensing housing is not acceptable.
4. Non-fouling wastewater level controls for controlling pump operation shall be accomplished by monitoring the pressure changes in an integral air column connected to a pressure switch.
5. Air column
 - a. Be integrally molded from a thermoplastic elastomer suitable for use in wastewater and with excellent impact resistance. The air column shall
 - b. Have only a single connection between the water level being monitored and the pressure switch.
 - c. Any connections are to be sealed radially with redundant O-rings.
 - d. No moving parts in direct contact with the wastewater and shall be integral to the pump core assembly in a single, readily-exchanged unit.
 - e. Depressing the push to run button must operate the pump even with the level sensor housing removed from the pump.
6. All fasteners throughout the assembly shall be 300 Series stainless steel. High-level sensing will be accomplished in the manner detailed above by a separate air column sensor and pressure switch of the same type.
7. Closure of the high-level sensing device will energize an alarm circuit as well as a redundant pump-on circuit. For increased reliability, pump ON/OFF and high-level alarm functions shall not be controlled by the same switch.
8. Float switches of any kind, including float trees, will not be accepted due to the periodic need to maintain (rinsing, cleaning) such devices and their tendency to malfunction because of incorrect wiring, tangling, grease buildup, and mechanical cord fatigue.
9. Core shall be equipped with a factory installed equalizer diaphragm that compensates for any atmospheric pressure or temperature changes. Tube or piping runs outside of the station tank or into tank-mounted junction boxes providing pressure switch equalization will not be permitted due to their susceptibility to condensation, kinking, pinching, and insect infestation.
10. The grinder pump will be furnished with a 6 conductor 14 gauge, type SJOW cable, pre-wired and watertight to meet UL requirements with a **FACTORY INSTALLED** NEMA 6P EQD half attached to it.

M. Alarm Panel

1. Each grinder pump station shall include a NEMA 4X, UL-listed alarm panel suitable for wall or pole mounting. Base bid shall include an E-One Sentry Protect Simplex alarm panel or approved equal.

- a. NEMA 4X enclosure shall be manufactured of thermoplastic polyester to ensure corrosion resistance.
2. Enclosure shall include a hinged, lockable cover with padlock, preventing access to electrical components, and creating a secured safety front to allow access only to authorized personnel. The enclosure shall not exceed 10.5" W x 14" H x 7" D, or 12.5" W x 16" H x 7.5" D if certain options are included.
3. Alarm panel shall contain one 15-amp, double-pole circuit breaker for the pump core's power circuit and one 15-amp, single-pole circuit breaker for the alarm circuit.
4. Contain a push-to-run feature, an internal run indicator, and a complete alarm circuit.
5. All circuit boards in the alarm panel are to be protected with a conformal coating on both sides and the AC power circuit shall include an auto resetting fuse.
6. Panel shall include the following features:
 - a. external audible and visual alarm; push-to-run switch
 - b. push-to-silence switch
 - c. redundant pump start
 - d. high level alarm capability
7. The alarm sequence is to be as follows when the pump and alarm breakers are on:
 - a. 1. When liquid level in the sewage wet-well rises above the alarm level, the contacts on the alarm pressure switch activate, audible and visual alarms are activated, and the redundant pump starting system is energized.
 - b. The audible alarm may be silenced by means of the externally mounted, push-to-silence button.
8. Visual alarm remains illuminated until the sewage level in the wet-well drops below the "off" setting of the alarm pressure switch.
9. The visual alarm lamp shall be inside a red, oblong lens at least 3.75" L x 2.38" W x 1.5" H.
10. Visual alarm shall be mounted to the top of the enclosure in such a manner as to maintain NEMA 4X rating.
11. Be externally mounted on the bottom of the enclosure, capable of 93 dB @ 2 feet. The audible alarm shall be capable of being deactivated by depressing a push-type switch that is encapsulated in a weatherproof silicone boot and mounted on the bottom of the enclosure (push-to-silence button).
12. The entire alarm panel, as manufactured and including any of the following options shall be listed by Underwriters Laboratories, Inc.
13. Contractor shall include, as a separate alternate bid, an upgrade to the E-One Sentry Protect Advisor alarm panel for remote monitoring as indicated on drawings.

2.2 SERVICEABILITY

- A. Grinder pump core, including level sensor assembly, shall have two lifting hooks complete with lift-out harness connected to its top housing to facilitate easy core removal when necessary.
- B. Level sensor assembly must be easily removed from the pump assembly for service or replacement.
- C. All mechanical and electrical connections must provide easy disconnect capability for core unit removal and installation.

- D. Each EQD half must include a water-tight cover to protect the internal electrical pins while the EQD is unplugged.
- E. A pump push-to-run feature will be provided for field trouble shooting.
- F. push-to-run feature must operate the pump even if the level sensor assembly has been removed from the pump assembly.
- G. All motor control components shall be mounted on a readily replaceable bracket for ease of field service.

2.3 OSHA CONFINED SPACE

- A. All maintenance tasks for the grinder pump station must be possible without entry into the grinder pump station (as per **OSHA 1910.146**, permit-required confined spaces). *“Entry means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant’s body breaks the plane of an opening into the space.”*

2.4 SAFETY

- A. Grinder pump station control power shall be connected to the residential side of the utility meter within the meter base in accordance with local utility approval and acceptance. The power shall be connected to a 30A disconnect prior to the alarm panel which provides power to the grinder pump station as shown on drawings.
- B. Grinder pump shall be free from electrical and fire hazards as required in a residential environment.
- C. Grinder pump shall meet accepted standards for plumbing equipment for use in or near residences, shall be free from noise, odor, or health hazards, and shall have been tested by an independent laboratory to certify its capability to perform as specified in either individual or low pressure sewer system applications.

PART 3 - EXECUTION

A. FACTORY TESTING

1. Each grinder pump shall be submerged and operated for 1.5 minutes (minimum). Included in this procedure will be the testing of all ancillary components such as, the anti-siphon valve, check valve, discharge assembly and each unit’s dedicated level controls and motor controls.
2. All factory tests shall incorporate each of the above listed items. Actual appurtenances and controls which will be installed in the field shall be particular to the tested pump only. A common set of appurtenances and controls for all pumps is not acceptable.
3. Certified test results shall be available upon request showing the operation of each grinder pump at two different points on its curve.

4. Additional validation tests include: integral level control performance, continuity to ground and acoustic tests of the rotating components.

B. CERTIFIED SERVICE PROGRAM

1. Should CONTRACTOR select a grinder pump unit that is not Environmental One Corporation Model DH071-93, the following will need to be done to verify manufacturer service program.
 - a. MANUFACTURER shall provide a program implemented by the MANUFACTURER'S personnel as described in this specification to certify the service company as an authorized serviced center.
 - b. As evidence of this, the MANUFACTURER shall provide, when requested, sufficient evidence that they have maintained their own service department for a minimum of 30 years and currently employ a minimum of five employees specifically in the service department.
 - c. As part of this program, the MANUFACTURER shall evaluate the service technicians as well as the service organization annually.
 - d. The service company will be authorized by the MANUFACTURER to make independent warranty judgments. The areas covered by the program shall include, as a minimum:
 - 1) Pump Population Information — The service company will maintain a detailed database for the grinder pumps in the territory that tracks serial numbers by address.
 - 2) Inventory Management — The service company must maintain an appropriate level of inventory (pumps, tanks, panels, service parts, etc.) including regular inventory review and proper inventory labeling. Service technicians will also maintain appropriate parts inventory and spare core(s) on service vehicles.
 - 3) Service Personnel Certification — Service technicians will maintain their level-specific certification annually. The certifications are given in field troubleshooting, repair, and training.
 - 4) Service Documentation and Records — Start up sheets, service call records, and customer feedback will be recorded and available by the service company.
 - 5) Shop Organization — The service company will keep its service shop organized and pumps will be tagged with site information at all times. The shop will have all required equipment, a test tank, and cleaning tools necessary to service pumps properly.

C. DELIVERY

1. All grinder pump units will be delivered to the job site 100 percent completely assembled, including testing, ready for installation.
2. Field installation of the pump in tanks under 96 inches is not allowed. Field installation of the level sensor into the tank is not allowed.
3. Grinder pump stations will be individually mounted on wooden pallets.

D. INSTALLATION

1. CONTRACTOR shall be responsible for handling ground water to provide a firm, dry subgrade for the structure, and shall guard against flotation or other damage resulting from general water or flooding.
 2. Grinder pump stations shall not be set into the excavation until the installation procedures and excavation have been approved by the RPR.
 3. Remove packing material. Hardware supplied with the unit, if required, will be used at installation.
 4. Basin will be supplied with a standard 4" inlet grommet (4.50" OD) for connecting the incoming sewer line. Appropriate inlet piping must be used. The basin may not be dropped, rolled or laid on its side for any reason.
 5. Installation shall be accomplished so that 1" to 4" of accessway, below the bottom of the lid, extends above the finished grade line.
 6. Finished grade shall slope away from the unit. The diameter of the excavated hole must be large enough to allow for the concrete anchor.
 7. A 6" inch (minimum) layer of naturally rounded aggregate, clean and free flowing, with particle size of not less than 1/8" or more than 3/4" shall be used as bedding material under each unit.
 8. The CONTRACTOR will coordinate with the RPR to install the gravity service lateral constructed out of 4 in. schedule 40 PVC from the existing discharge point to the grinder pump station unit.
 9. The electrical enclosure shall be furnished, installed and wired to the grinder pump station by the CONTRACTOR.
 10. An alarm device is required on every installation, there shall be NO EXCEPTIONS.
 11. It will be the responsibility of the CONTRACTOR and the RPR to coordinate with the individual property owner(s) to determine the optimum location for the Alarm Panel. The alarm panel will be connected to the grinder pump station as shown on the contract drawings. The power and alarm circuits must be on separate power circuits. The grinder pump stations will be provided with 32', 25' of useable, electrical supply cable to connect the station to the alarm panel. This cable shall be supplied with a FACTORY INSTALLED EQD half to connect to the mating EQD half on the core.
- E. BACKFILL REQUIREMENTS
1. Ballast to be installed as shown in contract drawings.
- F. SITE RESTORATION
1. All restoration will be the responsibility of the CONTRACTOR. Per unit costs for this item shall be included in the CONTRACTOR'S bid price for the individual grinder pump stations. The properties shall be restored to their original condition in all respects, including, but not limited to, curb and sidewalk replacement, landscaping, loaming and seeding, and restoration of the traveled ways, as directed by the RPR.
- G. START-UP FIELD TESTING
1. The MANUFACTURER shall provide the services of qualified factory trained technician(s) who shall inspect the placement and wiring of each station, perform field tests as specified herein.
 2. All equipment and materials necessary to perform testing shall be the responsibility of the INSTALLING CONTRACTOR. These steps shall be completed prior to the qualified factory trained technician(s) arrival on site. This includes:

- a. A portable generator and power cable (if temporary power is required).
- b. Water in each basin (filled to a depth sufficient to verify the high level alarm is operating).
- c. Opening of all valves in the system.
3. The services of a trained factory-authorized technician shall be provided at a rate of 40 hours for every 100 grinder pump stations supplied.
4. Upon completion of the installation, the authorized factory technician(s) will perform the following test on each station:
 - a. Make certain the discharge shut-off valve in the station is fully open.
 - b. Turn ON the alarm power circuit and verify the alarm is functioning properly.
 - c. Turn ON the pump power circuit. Initiate the pump operation to verify automatic “on/off” controls are operative. The pump should immediately turn ON.
 - d. Consult the Manufacturer’s Service Manual for detailed start-up procedures.
5. Upon completion of the start-up and testing, the MANUFACTURER shall submit to the **ENGINEER** the start-up authorization form describing the results of the tests performed for each grinder pump station. Final acceptance of the system will not occur until authorization forms have been received for each pump station installed and any installation deficiencies corrected.

PART 4 – OPERATION AND MAINTENACNE

4.1 MANUALS

- A. MANUFACTURER shall supply four copies of Operation and Maintenance Manuals to the OWNER, and one copy of the same to the ENGINEER.

END OF SECTION 33 32 16.13

(NO TEXT FOR THIS PAGE)

SECTION 33 32 21 – COMBINATION AIR RELEASE VALVE STATIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Summary includes: The MANUFACTURER shall furnish complete factory-built and tested Combination Air Release Valve Station(s), each consisting of a stainless steel manifold for mounting a factory provided 2" Male NPT Combination Air Valve suitably mounted in an HDPE Tank. The air valve itself may also be provided by others. The tank and manifold shall feature a quick disconnect feature that enables the valve to be removed from the top of the tank (at grade level) without entering the tank, conforming to OSHA Confined Space Standards.
- B. Related Work specified in Other Section Includes, but is Not Limited to, the Following:
 - 1. Section 33 01 30.14 – Low Pressure Sewer and Grinder Pump Testing
 - 2. Section 33 31 15 – Sanitary Laterals

1.2 REFERENCE STANDARDS

- A. ASTM 2321

1.3 SUBMITTALS

- A. Provide all submittals, including the following, as specified in Division 1.
 - 1. Shop drawings shall be submitted in accordance with Section 01 33 00 Submittal Procedures and shall include manufacturers catalog cuts, material information, and certifications of proof of compliance with all applicable standards.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 77 00 - Closeout Procedures: Requirements for submittals.
- B. Project Record Documents: Record actual locations of air release valves and combination air valves.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and handle all products and materials as specified in Division 1 (and as follows:)
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Storage:
 - 1. Store materials according to manufacturer instructions.

2. Do not store materials on private property without written permission of property owner.

1.6 WARRANTY

- A. The valve station MANUFACTURER shall provide a part(s) and labor warranty on the tank and valve manifold for a period of 12 months after shipment. Any manufacturing defects found during the warranty period will be reported to the MANUFACTURER by the OWNER and will be corrected by the MANUFACTURER at no cost to the OWNER. The Air Release Valve itself carries the actual VALVE MANUFACTURER'S standard warranty, which will be in effect through the VALVE MANUFACTURER.

PART 2 - PRODUCTS

2.1 COMBINATION AIR VALVE

A. UNIT REQUIREMENTS

1. Air release valve shall be a 2" Male NPT combination air valve that will act as an air release valve by allowing accumulated/entrapped air in the force main to escape as well as provide vacuum relief when needed.
2. Valve shall include an inlet, outlet, body, cover, float and lever mechanism, orifice and seat. The valve shall be a single body standard combination valve designed specifically for sewage applications.

B. TANK

1. Material
 - a. High Density Polyethylene Construction (HDPE).
2. Construction
 - a. tank shall be an open bottom wetwell design made of high-density polyethylene of a grade selected for environmental stress cracking resistance.
 - b. Corrugated sections are to be made of a double wall construction with the internal wall being generally smooth.
 - c. Corrugations of the outside wall are to be of a minimum amplitude of 1-1/2" to provide necessary transverse stiffness.
 - d. Any incidental sections of a single wall construction are to be a minimum of ¼" inch thick.
 - e. All seams created during tank construction are to be thermally welded and factory tested for leak tightness.
 - f. Tank wall must withstand the pressure exerted by saturated soil loading at maximum burial depth.
 - g. All station components must function normally when exposed to maximum external soil and hydrostatic pressure.
3. Include a lockable cover assembly providing low profile mounting and watertight capability.
 - a. Cover shall be high density polyethylene, green in color, with a load rating of 150 lbs per square foot.
 - b. Cover assembly shall also include an integral 2-inch vent to prevent sewage gases from accumulating in the tank.

- c. Accessway design and construction shall facilitate field adjustment of station height in increments of 3" or less without the use of any adhesives or sealants requiring cure time before installation can be completed.
- d. The station shall have all necessary penetrations factory sealed and tested. No field penetrations shall be acceptable.
- e. Tank shall have a stainless steel bulkhead for connection to the force main which terminates outside the tank wall with a 1-1/4" female pipe thread. The bulkhead shall be factory installed and warranted by the manufacturer to be watertight.
- f. Consult the contract drawings for station tank heights.

2.2 AIR RELEASE PIPING AND DISCONNECT VALVE

A. MATERIALS

1. All valve manifold fittings and piping shall be constructed from 304 Stainless steel and shall be factory assembled.

B. REQUIREMENTS

1. The valve inlet manifold shall also include a 1/4" stainless steel bleed off valve for ease of service.
2. Tank shall include a 1-1/4" stainless steel ball valve rated for 235 psi WOG with a quick disconnect feature to simplify installation and valve removal.
3. The bulkhead penetration of this valve shall be factory installed and warranted by the manufacturer to be watertight and shall terminate outside the accessway bulkhead with a stainless steel, 1-1/4" female NPT fitting. PVC ball valves or brass ball/gate valves will not be accepted.

2.3 SERVICEABILITY

- A. The valve shall have two lifting hooks complete with lift-out harness connected to its bottom housing to facilitate easy valve removal when necessary. All mechanical connections must provide easy disconnect capability for valve removal and installation.

2.4 OSHA CONFINED SPACE

- A. All maintenance tasks for the valve station must be possible without entry into the tank (as per OSHA 29 CFR 1910.146 permit-required confined spaces). *"Entry means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space."*

PART 3 - EXECUTION

PART 3 - EXECUTION

3.1 FACTORY TEST

- A. Each valve shall be factory tested for proper operation.

3.2 DELIVERY

- A. All valve stations will be delivered to the job site 100 percent completely assembled, including testing, ready for installation.
- B. The tanks of taller stations may be shipped in two pieces in order to fit on a truck.
- C. These taller tanks require a field joint to be assembled on site by the CONTRACTOR (consult contract drawings for additional details).
- D. The tank and valve inlet manifold piping may also be dropped shipped for use with an existing or new 2" Male NPT Air Release Valve provided by others.

3.3 TANK INSTALLATION

- A. Earth excavation and backfill are specified under Trenching 31 23 16.13, but are also to be done as a part of the work under this section, including any necessary sheeting and bracing.
- B. Installation shall be in strict accordance with station and valve manufacturers' recommendations.
- C. The CONTRACTOR shall be responsible to provide a firm, dry subgrade for the structure.
- D. The valve stations shall not be set into the excavation until the installation procedures and excavation have been approved by the ENGINEER.
- E. Remove packing material. User instructions MUST be given to the OWNER. Hardware supplied with the unit, if required, will be used at installation.
- F. The basin may not be dropped, rolled or laid on its side for any reason.
- G. Installation shall be accomplished so that 1" to 4" of accessway, below the bottom of the lid, extends above the finished grade line.
- H. The finished grade shall slope away from the unit.
- I. A 12" inch (minimum) layer of naturally rounded aggregate, clean and free flowing, with particle size of not less than 1/8" or more than 3/4" shall be used as bedding material under each unit. The ENGINEER shall make the final bedding determination based on field conditions.

3.4 BACKFILL REQUIREMENTS

- A. OPTION 1: Surround the unit to grade using Class I or Class II backfill material as defined in ASTM 2321.
- B. OPTION 2: Flowable Fill
 - 1. Flowable fills should not be dropped more than four feet from the valve station inlet to the bottom of the hole to avoid separation of the constituent materials.
- C. OPTION 3: Native Earth

1. Fill should be free of rocks, roots, and foreign objects, shall be thoroughly compacted in lifts not exceeding 12" to a final Proctor Density of not less than 85%

3.5 VALVE INSTALLATION

- A. The valve station shall be installed at a minimum depth from grade to the top of the 1 1/4" valve inlet line, to assure maximum frost protection.
- B. The finish grade line shall be 1" to 4" below the bottom of the lid, and final grade shall slope away from the valve station.

3.6 SITE RESTORATION

- A. All restoration will be the responsibility of the CONTRACTOR. Per-unit costs for this item shall be included in the CONTRACTOR'S bid price for the individual valve station. The properties shall be restored to their original condition in all respects, including, but not limited to, curb and sidewalk replacement, landscaping, loaming and seeding, and restoration of the traveled ways, as directed by the ENGINEER.

END OF SECTION 33 32 21

(NO TEXT FOR THIS PAGE)

SECTION 33 32 22 - VALVES AND APPURTENANCES FOR LOW PRESSURE SEWER

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes requirements for the installation and furnishing of valves, and accessories necessary to complete the Work shown or specified.

1.2 RELATED WORK

- A. Section 33 33 00 – Low Pressure Utility Sewerage
- B. Section 33 31 15 – Sanitary Laterals

1.3 DEFINITIONS

1. Abbreviations

- a. ANSI - American National Standards Institute
- b. ASTM - American Society for Testing & Materials
- c. AWWA - American Water Works Association
- d. MSS - Manufacturers Standardization Society of the Valve and Fittings Industry

- 2. Note: All valve sizes on the Drawings or in the Specifications are intended to be nominal size and shall be interpreted as such.

1.4 REFERENCES

A. American Water Works Association:

- 1. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- 2. AWWA C500 - Metal-Seated Gate Valves for Water Supply Service
- 3. AWWA C515 - Resilient-Seated Gate Valves for Water Supply Service
- 4. AWWA C550 - Protecting Interior Coatings for Valves and Hydrants
- 5. AWWA C800 - Underground Service Line Valves and Fittings

B. American National Standards Institute:

- 1. ANSI B16.1 - Cast Iron Pipe Flanges and Flanged Fittings

C. ASTM International:

1. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings

1.5 SUBMITTALS

- A. Section 01 33 00 "Submittal Procedures".
- B. Product Data: Submit data for valves and all accessories. Provide evidence of compliance with the noted AWWA Standards.
- C. Shop Drawings: Indicate dimensions, method of field assembly and components, sizes of appurtenances provided, and any additional options required to complete the Work.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
 - 1. Provide a certification that all valves furnished are manufactured in the United States in accordance with Exhibit G of the Contract Documents,
- E. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- F. O&M Manuals: Provide Operation and Maintenance Manuals for the following items.

1. Gate Valves.

1.6 QUALITY ASSURANCE

- A. Mark pipe, fittings, and valves according to the applicable specification or standard.
- B. Perform Work according to all applicable local, State and Federal standards.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 "Product Requirements": Requirements for transporting, handling, storing, and protecting products.
- B. Prepare valves and accessories for shipment according to the applicable AWWA standards.
- C. Seal valve ends to prevent entry of foreign matter.
- D. Inspection: Accept materials on site in manufacturer's original packaging and inspect for damage.
- E. Storage:

1. Store materials in areas protected from weather, moisture, or potential damage.
 2. Do not store materials directly on ground.
- F. Handle materials in a way that prevents damage to interior and exterior surfaces.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Valves shall be as shown on the Drawings or as required by the manufacturer's and AWWA specifications. All valves shall be new and unused.

2.2 VALVES

A. GATE VALVES

1. Buried gate valves 3-inches and larger shall be full ductile iron body, epoxy fusion bonded inside and out, non-rising stem gate valves. Valves shall meet the requirements of AWWA C515 and have mechanical joint ends. Mechanical joints and joint accessories as well as mechanical restraints shall comply with AWWA C111. Valve opening direction shall be consistent with operation of existing valves in the distribution system where the valves are installed, unless otherwise directed by the Owner.

2. Buried valves 2-inch and smaller shall be curb stops. Curb stops shall meet the applicable requirements of AWWA C800, ASTM B 62 for 85-5-5-5 composition bronze, and USAS B2.1. Curb stops shall be Polycam Series 576, Ford B101 Series, or as approved by the Engineer.

B. LATERAL ASSEMBLY VALVE

1. For each lateral assembly, provide a Uni-Lateral stainless steel lateral valve.
2. The valve shall consist of a check valve, ball valve, and cleanout in one compact module as provided by E/One.
3. The valve shall be construction of 304 stainless steel and be compatible for use with 1 ¼" HDPE DR 11.

2.3 VALVE BOXES

- A. Valve boxes for gate valves shall be cast iron. Valve boxes shall be two-piece or three-piece type. Each two-piece box shall be complete with bottom section, top section and cover. Each three-piece box shall be complete with base, center section, top section and cover. Valve boxes shall be extension type with slide or screw type adjustment. Each base and bottom section shall be the proper size for the valve served. Each valve box assembly shall be the proper length for the valve served. The minimum thickness of metal shall be 3/16-inch. Cast the word "SEWER" in each valve box cover.
- B. Valve boxes for curb stops shall be cast iron. Curb boxes shall be extension type. Each curb box shall be complete with foot piece, curb box and lid. Curb box shall be the following or as approved by the Engineer:

<u>Curb Stop Size</u>	<u>Foot Piece</u>	<u>Curb Box with Lid & Plug</u>
¾"	Mueller H-10391	Mueller H-10316
1"	Mueller H-10392	Mueller H-10316
1 ½"	Mueller H-10394	Mueller H-10336
2"	Mueller H-10395	Mueller H-10336

PART 3 - EXECUTION

3.1 GENERAL

- A. Prior to installation, protect stored valves and appurtenances from damage due to exposure to sunlight, heat, dirt, debris, freezing and thawing, and vandalism.
- B. Clean all debris, dirt, gravel, etc. from inside of piping before placing valves in place.

3.2 EXAMINATION

- A. Section 01 73 00 "Execution" and Section 01 77 00 "Closeout Procedures": Requirements for installation examination.
- B. Determine exact location and size of valves from Drawings.
- C. Verify that invert elevations are as indicated on Drawings prior to excavation and installation.

3.3 INSTALLATION

- A. Perform trench excavation, backfilling, and compaction as specified in Section 31 23 16.13 “Trenching”.
- B. Clean the interiors of valves of foreign matter before installation. Tighten stuffing boxes. Inspect valves in opened and closed positions to ensure all parts are in working condition.
- C. VALVE BOXES
 - a. Provide valve box for each buried valve and where indicated.
 - b. Set box so top is flush with finished surface and so box does not bear on valve, or pipe.
- D. BALL VALVES
 - A. Install valves per manufacturer’s recommendation and as otherwise directed by the Engineer.
- E. VALVES
 - 1. Install valves in conjunction with pipe laying.
 - 2. Set valves and valve boxes plumb. Center valve boxes on the valves or valve operators. Locate valves outside the area of roads and streets where feasible.
 - 3. Provide buried valves with valve boxes installed flush with finished grade.
 - 4. Tamp backfill around each valve box to a distance of 4 feet on all sides of the box or to the undisturbed trench face if less than 4 feet.
 - 5. Provide valves with tags that reflect the valve number as depicted in the drawings.

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 “Quality Requirements”: Requirements for inspecting and testing.
- B. Pressure test the system according to AWWA C600 and Section 33 05 05.31.

END OF SECTION 33 32 22

(NO TEXT FOR THIS PAGE)

SECTION 33 33 00 - LOW PRESSURE UTILITY SEWERAGE

PART 1 - GENERAL

1.1 SUMMARY

- A. Summary includes: The work of this Section involves all labor, materials, and equipment necessary for the complete installation of the low pressure sewer as shown on the Contract Drawings and specified herein. Pipe materials shall be of the size and type shown on the Drawings and as allowed by these specifications.
- B. Related Work specified in Other Section Includes, but is Not Limited to, the Following:
 - 1. Section 33 31 30.14 – Low Pressure Sewer and Grinder Pump Testing
 - 2. Section 33 31 15 – Sanitary Laterals
 - 3. Section 33 31 16 – Valves and Appurtenances
 - 4. Section 33 32 16.13 - Grinder Pump Station Unit
 - 5. Section 33 32 21 – Combination Air Release Valve Stations

1.2 REFERENCE STANDARDS

- A. ASTM International:
 - 1. ASTM 714-22 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter
 - 2. ASTM D3035-21 – Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter
 - 3. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
 - 4. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

1.3 SUBMITTALS

- A. Provide all submittals, including the following, as specified in Division 1.
 - 1. Shop drawings shall be submitted in accordance with Section 01 33 00 Submittal Procedures and shall include manufacturers catalog cuts, material information, and certifications of proof of compliance with all applicable standards.
 - 2. Manufacturer Instructions: Indicate special procedures required to install specified products.
 - 3. Three (3) copies of all required testing reports shall be provided to RPR upon completion of the work and before final payment.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 77 00 – Closeout Procedures: Requirements for submittals.
- B. Project Record Documents: Record actual locations of pipe runs, connections, and valves.
- C. Identify and describe unexpected variations to subsoil conditions, or discovery of uncharted utilities.

1.5 DEILVERY, STORAGE AND HANDLING

- A. Deliver, store, and handle all products and materials as specified in Division 1 (and as follows:)
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Storage:
 - 1. Store materials according to manufacturer instructions.
 - 2. Do not store materials on private property without written permission of property owner.
 - 3. Do not stack pipe higher than recommended by pipe manufacturer.

PART 2 - PRODUCTS

2.1 LOW PRESSURE SEWER PIPE

- A. Pipe Material
 - 1. Comply with ASTM F714-97, DR 11 and ASTM D3035-21 for pipes with a diameter smaller than 2 in.
 - 2. Flexible Elastomeric Seals: Comply with ASTM D3139.
 - 3. Pipe shall be homogenous throughout and free of visible cracks, holes, foreign inclusions, blisters, and other defects. Unless otherwise shown or indicated, pipe shall be uniform in color, opacity, density, and other physical properties.
 - 4. Buried pipe shall be capable of withstanding external live load, including impact, equal to AASHTO H-20 loading, with cover shown or indicated in the Contract Documents.
 - 5. Clean rework may be used if the pipe or fittings meet all the requirements of this Section.
 - 6. Pipe shall be capable of withstanding a minimum recurring surge pressure (water hammer) flow velocity of 4 ft/sec, 55 cycles/day, and 100-year estimated fatigue life, or higher if shown in the Drawings.

B. Seal Material:

1. Elastomeric joints.
2. Comply with ASTM F477

C. Fittings:

1. Type: Socket.
2. DR 11
3. Comply with ASTM D2466.

2.2 TRACER WIRE

- A. Tracer wire for open-cut installation of low pressure sewers shall be Copperhead Direct Burial #12 AWG Solid (0.0808" diameter), steel core soft drawn high strength, 380# average tensile break load, with 30 mil high molecular weight-high density yellow polyethylene jacket complying with ASTM D-1248, 30 volt rating, or approved equal. Tracer wire for installation of low pressure sewers by Horizontal Directional Drilling shall be per Section 33 05 07.13 – Utility Directional Drilling.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Horizontal Directional Drilling (HDD) installation of low pressure sewer pipe shall be as required in Section 33 05 07.13 Utility Directional Drilling.
- B. Locating Tracer Wire:
 1. For open-cut installation of mainline or lateral pipe tracer wire shall be installed in one continuous length between access points. Wire ends shall be accessible inside the structures and manholes or via riser pipes. The wires shall be gathered and secured to prevent access or maintenance problems. The ends shall be fastened to the structure or manhole wall or riser pipe within one foot of the casting in a visible location that is accessible for connection without entering the structure.
 2. The wires shall be installed along the pipe, fastened securely to the pipe at five (5) foot intervals, and terminating above ground with the lead taped around each structure. The wire shall be brought up to the ground level every four hundred (400) feet through a vinyl coated aluminum riser pipe with cap and/or at all line valve boxes. The wires shall be connected using DBR Direct Burial Splice Kit manufactured by 3M Electrical Products Division, Austin, TX or approved equal. The riser pipe and cap shall not be placed in areas subject to vehicular traffic. The tracer wire shall be capable of, and demonstrated to have, continuous transmission of tracing signal along the full length of the installed pipe.

3. If any appurtenant structure, such as an air release valve, is required as part of the force main installation, the wire shall be cut with each end entering the structure under the casting frame.

3.2 HYDROSTATIC LEAK TEST

- A. Hydrostatic leak testing shall be performed in accordance with Section 33 31 30.14.

END OF SECTION 33 33 00

APPENDIX A: GEOTECHNICAL REPORT



GEOTECHNICAL ENGINEERING INVESTIGATION

PROPOSED WASTEWATER TREATMENT PLANT AND GRAVITY SEWER SYSTEM
WHEATLAND, INDIANA

ATLAS PROJECT NO. 170GC01517

JANUARY 6, 2023

PREPARED FOR:

WHEATLAND WATER UTILITY DEPARTMENT
C/O RQAW CORPORATION
8770 NORTH STREET
FISHERS, IN 46038

ATTENTION: MR. AARON CROW, P.E.
WATER/WASTEWATER PROJECT MANAGER



January 6, 2023

Wheatland Water Utility Department
c/o Mr. Aaron Crow, P.E.
Water/Wastewater Project Manager
RQAW Corporation
8770 North Street
Fishers, IN 46038

ATLAS Technical
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Re: **Geotechnical Engineering Investigation**
Proposed Wastewater Treatment Plant and Gravity Sewer System
Wheatland, Indiana
Atlas Project No. 170GC01517

Dear Mr. Crow:

Submitted herewith is the report of the geotechnical engineering investigation performed by Atlas Technical Consultants LLC (Atlas) for the referenced project. This study was authorized in accordance with Atlas Proposal-Agreement No. 22-11727 dated September 15, 2022.

This report contains the results of the field and laboratory testing program, an engineering interpretation of this data with respect to the available project characteristics and recommendations to aid design and construction of the earth-connected phases of this project. We wish to remind you that we will store the samples for 30 days after which time they will be discarded unless you request otherwise.

We appreciate 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 either of the undersigned.

Sincerely,

A handwritten signature in blue ink, appearing to read "Daniel Homm".

Daniel Homm, P.E.
Senior Project Engineer



A handwritten signature in blue ink, appearing to read "David McIlwaine".

David Mcilwaine, P.E.
Senior Project Engineer

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1 PURPOSE AND SCOPE

The purpose of this study was to determine the general subsurface conditions at the project site by drilling 32 test borings specifically for this project and to evaluate this data with respect to design and construction of the proposed wastewater treatment plant and gravity sewer system. In addition to the 32 soil test borings that were drilled specifically for this project, this study also includes data from 12 test borings that were drilled in the near vicinity of the proposed project site. Also included is an evaluation of the site with respect to potential construction problems and recommendations dealing with quality control during construction.

2 PROJECT CHARACTERISTICS

RQAW is assisting the Town of Wheatland in developing plans for a new wastewater treatment plant and the installation of a new gravity sewer system in Wheatland, Indiana. The general location of the project site is shown on the Vicinity Map (Figure 1 in the Appendix). The new 47,000 gallon/day wastewater treatment plant will be located at the east terminus of East Main Street and will include a lift station, an aerator/digester/sludge holding tank (Aeromod tanks), a covered sludge drying bed and multiple other features. It is our understanding that all of the structures will be above-grade except for the lift station, which will bear about 25 ft below the existing grade. Other proposed water system improvements include installing new sludge piping, drying bed drain lines, a UV disinfection chamber and a step aeration structure.

The project will also include a new gravity sewer system throughout the entire town. It is our understanding that the proposed sewers will typically be installed at depths ranging from as shallow as about 5 ft to as deep as about 30 ft below the existing ground surface and consist of PVC piping with a diameter of 8 inches. The approximate test boring locations, proposed wastewater treatment plant facilities and existing site conditions are shown on the Boring Plans (Figures 2 and 3 in the Appendix).

Details regarding structural loads are not available at this time; however, for the purpose of this study it has been assumed that the maximum column, wall and floor loads for the proposed structures will not exceed about 200 kips/column, 5 kips/lin.ft and 200 lbs/sq.ft, respectively. No unusual loading conditions or settlement restrictions have been specified.

3 GENERAL SUBSURFACE CONDITIONS

The general subsurface conditions were investigated by drilling 32 test borings for this investigation (Borings B-101 through B-132) in addition to 12 test borings that were drilled previously. The test borings were drilled to depths of 15 ft to 40 ft below the existing ground surface. The test borings were performed at the approximate locations shown on the Boring Plans (Figures 2 and 3 in the Appendix). In addition to the 32 test borings that were drilled specifically for this project, this study also includes 12 soil test borings that were drilled in the near vicinity of the project site (Borings B-1 through B-12 for Atlas Project No. 170GC01308).

The subsurface conditions disclosed by the field investigation are summarized in the following paragraphs. Detailed descriptions of the subsurface conditions encountered in the test borings are presented on the "Test Boring Logs" in the Appendix. The letters in parentheses following the soil descriptions are the soil classifications in general accordance with the Unified Soil Classification System (ASTM D2488). It should be noted that the stratification lines shown on the test boring logs represent approximate transitions between material types. In-situ stratum changes could occur gradually or at different depths.

3.1 Subsurface Soil and Bedrock Conditions

Most of the test borings were drilled in the existing streets and revealed approximately 5 inches to 12 inches of asphalt pavement, with some also encountering aggregate base with thicknesses ranging from 8 inches to 10 inches. Borings B-118 and B-119 revealed 4 inches and 6 inches of brick, respectively, below the overlying asphalt. Borings B-127 and B-128 encountered 12 inches and 5 inches, respectively, of cinders underlying the asphalt pavement. Borings B-101, B-102, B-103 and B-104 were drilled in a grass area near the east boundary of the town, in the area of the proposed wastewater treatment plant and encountered topsoil with thicknesses ranging from 4 inches to 6 inches.

Underlying the pavement most of the test borings revealed silty clay fill materials containing various amounts of sand and gravel to a depth of approximately 3.5 ft below the existing ground surface. These soils were identified as fill material due to the unusual color, texture and stratification of the soil samples. Borings B-113, B-116 and B-127 revealed trace cinders and/or brick fragments within the silty clay fill soil.

Underlying the surficial materials and/or fill, the test borings typically revealed moderate to high plasticity, soft to medium stiff cohesive soils consisting primarily of silty clay (CL) that contains varying small amounts of sand in some cases. Layers of clayey silt (ML) and/or higher plasticity clay (CH) were also encountered in some of the test boings interbedded within the silty clay soils. Also interbedded within the cohesive layers at varying depths were granular soil seams/layers consisting of loose to dense silty sand (SM), sand (SP-SM) and/or clayey sand (SC). Underlying these soils, weathered shale and sandstone bedrock was encountered in about half of the test borings at depths ranging from about 13 ft to 21 ft below the existing ground surface.

As described above, some of the test borings drilled for this project revealed weathered bedrock and Borings B-107, B-114, B-121, B-125, B-126 were drilled to auger refusal. Auger refusal is defined herein as the depth at which a conventional test drill rig cannot advance the hollow-stem-augers such as those used for this subsurface investigation. It is important to understand that auger refusal is not necessarily coincident with the bedrock surface since the augers can penetrate the upper weathered or fractured bedrock in most cases. The following table summarizes the depths and elevations at which the top of bedrock was encountered in the test borings drilled for this investigation.

Table No. 1 – Estimated Depths and Elevations of Auger Refusal

Boring No.	Ground Surface Elevation*	Top of Bedrock Depth, ft	Estimated Top of Bedrock Elevation, ft*	Estimated Bottom of Test Boring Elevation*
B-101	479	NA	NA	439
B-102	480	NA	NA	460
B-103	479	NA	NA	454
B-104	479	NA	NA	459
B-105	486	NA	NA	466
B-106	484	NA	NA	464
B-107	493	16.0	477	469
B-108	482	NA	NA	462
B-109	488	NA	NA	473
B-110	479	NA	NA	454
B-111	485	18.0	467	450
B-112	480	NA	NA	465
B-113	483	20.5	463	458
B-114	478	21.0	457	454
B-115	479	NA	NA	459
B-116	479	NA	NA	464
B-117	477	NA	NA	462
B-118	492	NA	NA	477
B-119	491	NA	NA	471
B-120	507	16.0	491	477
B-121	512	13.0	499	486
B-122	509	15.5	494	490
B-123	507	NA	NA	487
B-124	518	13.0	505	503
B-125	515	16.0	499	476
B-126	501	15.5	486	470
B-127	490	18.0	472	470
B-128	489	20.5	469	455
B-129	486	NA	NA	461
B-130	489	NA	NA	474
B-131	486	NA	NA	451
B-132	479	NA	NA	444
B-1	495**	NA	NA	480
B-2	501**	NA	NA	486
B-3	500**	NA	NA	490
B-4	490**	NA	NA	475
B-5	521**	NA	NA	506
B-6	494**	NA	NA	479
B-7	508**	NA	NA	493
B-8	485**	NA	NA	470
B-9	484**	NA	NA	469
B-10	486**	NA	NA	NA
B-11	483**	NA	NA	473
B-12	490**	13.5	477	475

NA – Bedrock not encountered in test boring.

*Ground surface elevation estimated from plans provided by RQAW.

**Ground surface elevation estimated from Google Earth.

The qualitative strengths or consistencies of the cohesive soils and the qualitative densities of the granular soils as described above and on the test boring logs were estimated based on the results of the standard penetration test (ASTM D1586) and based on the definitions as described on the Field Classification System for Soil Exploration contained in the Appendix of this report.

3.2 Ground Water

Ground water observations were made during the drilling operations by noting the depth of free ground water (if any) on the drilling tools and in the open boreholes (if any) immediately after withdrawal of the drilling augers. Free ground water was noted at depths varying from about 11 ft to 22 ft below the existing ground surface in about half of the test borings while no free ground water was noted in the other test borings.

It must be noted that short-term ground water level observations made in cohesive soils are not necessarily a reliable indication of the current ground water level or future ground water levels. Therefore, ground water may be encountered at varying depths and locations across the site and fluctuations in the level of the ground water should be expected due to variations in rainfall and other factors not evident at the time of the field investigation. It is also possible that “perched” ground water may be encountered at various depths and locations across the site and water is often trapped within old miscellaneous fill materials, abandoned utilities, utility trenches, etc. and although the amount of such water is usually not significant, it is important to recognize that such ground water may be encountered at various depths and locations.

4 DESIGN RECOMMENDATIONS

The following design recommendations have been developed on the basis of the previously described project characteristics (Section 2) and subsurface conditions (Section 3). If there are any changes in the project criteria, including the proposed lift station location, bearing elevation, sewer alignment, invert elevations, etc., a review should be made by this office.

The design recommendations presented herein are based on the assumption that all earth related elements of the project will be carefully and continuously observed, tested and evaluated by a geotechnical engineer or qualified geotechnical technician working under the direction of a geotechnical engineer to confirm that the earth related elements of the project are compatible and consistent with the conditions upon which the design recommendations are based. The careful and thorough field testing and observations of the soil related aspects of the project are a critical and essential component of the design recommendations.

4.1 Seismic Parameters

Based on geologic mapping and the results of the test borings, it is our opinion that the subsurface conditions at this site meet the criteria for Site Class D based on Section 1613.3.2 of the 2012 International Building Code (Chapter 20 of ASCE 7-10 “Minimum Design Loads for Buildings and Other Structures”). The recommended seismic design parameters are summarized in the following table:

Table No. 2 - Recommended Seismic Design Parameters

Seismic Design Parameter	Recommended Class/Value
Seismic Site Class*	D
Site Modified Peak Ground Acceleration, PGA_M	0.30g
Design Spectral Response Acceleration at Short Periods, S_{DS}^{**}	0.40g
Design Spectral Response Acceleration at 1-Second Period, S_{D1}^{**}	0.22g

*Based upon Chapter 20 of ASCE 7-10 "Minimum Design Loads for Buildings and Other Structures"

**Based upon Section 1613 of the 2012 International Building Code

4.2 Wastewater Treatment Plant Structure Foundations

The results of the subsurface investigation indicates that the proposed structures can be supported on mat foundations and/or conventional spread footings provided that any uncontrolled fill and any zones of softer and/or looser natural soils are first removed and replaced with engineered fill at the mat foundation and spread footing locations. Mat foundations that bear at or below El 477 on firm natural soil, or on well-compacted engineered fill that is placed over firm natural soil after first removing any unsuitable materials, can be designed for a maximum allowable soil bearing pressure of 2,000 lbs/sq.ft. A modulus of subgrade reaction value of 15 lbs/cu.in. can be used for the structural design of the mat foundations in this case. Conventional spread footings that bear on firm natural soil at or below El 477 can be designed for an allowable soil bearing pressure of 2,000 lbs/sq.ft for both column (square type) and wall (strip type) footings. The net allowable soil bearing pressures can be increased by a factor of 1.33 for extreme or transient loading conditions such as wind gusts and earthquake loads.

It is extremely important that the soil at the base of each mat foundation and spread footing excavation be carefully observed and evaluated as described in Section 5.2 so that any unsuitable materials (such as any uncontrolled fill, softer/looser natural soils, etc.) can be identified, removed and replaced and to verify that the mat foundations and spread footings will bear on suitable materials. Based on the results of the test borings, it is expected that undercutting of at least softer/looser natural soils, and possibly old uncontrolled fill, will be required at some locations. It is recommended that the contract documents include provisions for the removal and replacement of unsuitable materials as determined to be necessary based on field observations at the time of construction. The careful and thorough field testing and observations of the soils at the bases of the foundation excavations are a critical and essential component of the foundation design.

4.3 Mat Foundation – Lift Station

The results of the subsurface investigation indicate that the proposed lift station structure can be supported on a base mat foundation bearing approximately 17 ft, or deeper, below the existing ground surface. A mat foundation that bears on firm natural soil at or below about El 462, at least about 17 ft below the existing ground surface, can be designed for a maximum allowable gross soil bearing pressure of 3,500 lbs/sq.ft. A modulus of subgrade reaction value of 25 lbs/cu.in. can be used for the structural design of the mat foundation in this case.

It is important that the soil at the base of the mat foundation be carefully observed and evaluated as described in Section 5.3 so that any unsuitable materials can be identified, removed and replaced and to verify that the foundation will bear on suitable materials. The careful and thorough field testing and observations of the soils at the base of the foundation excavation are a critical and essential component of the foundation design. Where undercutting is required to remove unsuitable materials, the proposed foundation elevation may be re-established by backfilling with lean concrete after all undesirable materials have been removed.

4.4 General Foundation Recommendations

In using net pressure, the weight of the footing and backfill over the footing including the weight of the floor slab need not be considered; hence, only loads applied at or above the finished floor need to be used for dimensioning the footings. Wall footings should be at least 2 ft wide and column footings should be at least 3 ft wide for bearing capacity considerations.

All exterior footings and footings in unheated areas should be located at a depth of at least 2.5 ft below the final exterior grade for frost protection. Although the Indiana Building Code requires only 2 ft of foundation embedment below the exterior grade in Knox County, our experience indicates that the actual frost depths in this region can occur deeper. Interior footings can be located at nominal depths below the finished floor provided all undesirable materials (i.e., softer natural soils, fill materials, etc.) are removed at the footing locations.

Provided that the footings are designed as prescribed herein and the footing excavations are evaluated as outlined in Section 5.3, it is estimated that the total and differential foundation settlements should not exceed about 1 in. and $\frac{3}{4}$ in., respectively. Careful field control will contribute substantially to minimizing the settlements.

Care must be exercised when excavating near any existing structures, utilities, etc. that will remain to protect the integrity of the existing features. Bracing or underpinning will be required where it is necessary to excavate below the bottom elevation of the existing features.

Uplift forces on the spread footings can be resisted by the weight of the footings and the soil material that is placed over the footings. It is recommended that the soil weight considered to resist uplift loads 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 110 lbs/cu.ft can be used for the backfill material placed above the footings, provided it is compacted as recommended in Section 5.2. It is also recommended that a factor of safety of at least 1.3 be used for calculating uplift resistance from the footings, provided only the weight of the footing and the soil immediately above it are used to resist uplift forces.

Lateral loads imparted upon shallow spread footings can be resisted by the passive lateral earth pressure against the sides of the footings and by friction between the foundation soil and the bases of the footings. If passive lateral earth pressure is to be used to resist lateral loads imparted on the spread footings, it is essential that the soil that is relied upon to provide the passive lateral earth pressure resistance cannot be excavated or otherwise disturbed at any time in the future. If it is possible that disturbance or an excavation could be made in any portion of the passive zone (including not only soils immediately beside the spread footings but also the soils that exist above the top of the footing elevation since the passive resistance is dependent upon the weight of the overburden soils), then passive lateral earth pressure resistance should not be considered for resistance of lateral loads. Since significant displacement is required to mobilize passive resistance, a factor of safety of 3 has been used to determine the allowable equivalent fluid pressure for the passive condition in order to minimize the potential for excessive displacement. Based upon the soils encountered at this site, an allowable passive lateral earth pressure (allowable "equivalent fluid pressure") of 125 lbs/sq.ft per foot of depth below the ground surface can be used for that portion of the footing that is below a depth of 2.5 ft below the final exterior grade, or 2.0 ft below the interior floor slab (no portion of the footing above these depths should be used for lateral resistance). An allowable coefficient of friction between the base of the footing and the underlying soil of 0.2 (based on a factor of safety of 1.5) can be used in conjunction with the minimum downward load on the base of the footing.

4.5 Slab-on-Grade Floors

Slab-on-grade floors can be supported on firm natural soils or on new compacted structural fill. It is furthermore recommended that the slab-on-grade floors be supported on a 6 in. thick layer of relatively clean granular material such as sand and gravel or crushed stone. This is to help distribute concentrated loads and equalize moisture conditions beneath the slab. Provided that a minimum of 6 in. of granular material is placed below the slab, a modulus of subgrade reaction (k_{30}) of 110 lbs/cu.in. can be used for design of the floor slabs.

4.6 Lift Station Walls, Ground Water and Uplift Resistance

The magnitude of the lateral earth pressure against the lift station walls is dependent on the method of backfill placement, the type of backfill material used, drainage provisions and whether or not the walls are permitted to yield during and/or after placement of the backfill. When a wall is held rigidly against horizontal movement, such as walls that are braced by the other walls (which is the case for the lift station structure), the lateral earth pressure against the walls is greater than the "active" lateral earth pressure that is typically used in the design of free-standing retaining walls that are free to rotate sufficiently to develop the "active" lateral earth pressure condition. Therefore, since the lift station walls will be braced and will not be free to rotate to develop the active lateral earth pressure condition, the walls should be designed for "at-rest" lateral earth pressures using an at-rest lateral earth pressure coefficient, K_0 . A design illustration to aid in computing lateral earth pressures against the below-grade lift station walls is included as Figure 4 in the Appendix.

It is recommended that only well-graded granular material should be used for backfill behind the below-grade walls within a zone defined by a plane extending upward and outward on a 1 to 1 slope from the base of the wall as shown in Figure 4. Provided that well-graded granular materials are used for backfill behind the below-grade walls, a coefficient of lateral earth pressure at-rest (K_0) of 0.45 can be used to calculate the at-rest lateral earth pressure against the below-grade lift station walls, with an at-rest lateral earth pressure value of 0.55 for cohesive soils, using Figure 4 in the Appendix.

It is assumed that the proposed below-grade lift station structure will be made watertight and designed to resist buoyancy (uplift) and full hydrostatic pressures. Figure 4 in the Appendix, which includes hydrostatic pressures as well as lateral earth pressures, can be used for the design of the below-grade walls in this case. Figure 4 includes pressures due to surcharge loads at the ground surface, lateral earth pressures and hydrostatic pressure acting on the below-grade walls. A minimum area surcharge loading of 250 lbs/sq.ft should be included for design of the walls to account for the surcharge from the future maintenance equipment that may be necessary around the structure. In using Figure 4 in the Appendix to determine the pressures acting upon the below-grade lift station walls, it is recommended that the total soil unit weight (γ_T) of the backfill materials be assumed to be 125 lbs/cu.ft, the submerged soil unit weight (γ'_s) of the backfill materials should be assumed to be 63 lbs/cu.ft and a coefficient of lateral earth pressure at-rest (K_0) of 0.45 for granular soils and 0.55 for cohesive soils should be used.

Figure 5 in the Appendix can be used to analyze uplift resistance for the structure due to buoyancy from the structure being watertight, submerged and undrained. It is recommended that the design high ground water level be considered approximately 12 ft below the existing ground surface, or higher if it is possible that flooding could occur in this area. As the base of the lift station could be below the design high water level, provisions must be included in the design of the lift station for the condition when the water level inside the lift station is insufficient to counteract the buoyancy due to the water level, in which case the lift station would be prone to floating or heaving. The uplift loads due to buoyancy of the structure can be resisted by the dead weight of the structure, including the weight of the mat foundation, and any fill that is placed over the lip or foundation extension of the structure as depicted in Figure 5 in the Appendix.

4.7 Gravity Sewer Lines

Based upon the test boring results described in Section 3, the existing soils revealed in the test borings at the estimated pipe invert elevations should provide adequate support for the proposed utility lines and any associated manholes, provided that the excavations are properly dewatered where necessary, prepared and inspected. Any extremely loose or soft soils noted within the base of an excavation should be removed and replaced with engineered fill. Proper dewatering when ground water is revealed is essential to prevent deterioration of the subgrade soils. Positive seals should be provided at joints between pipe sections according to the pipe manufacturer's specifications. It is recommended that the sewer be bedded in sand and that the backfill surrounding and overlying the pipe consist of sand that is free of large gravel or cobbles.

Based upon the test borings drilled across the project site, weathered shale and sandstone bedrock will need to be removed at some locations in order to establish the new sewer lines and associated structures. It likely will be possible to remove some of the upper weathered bedrock in most cases with conventional soil excavation equipment.

4.8 Construction Considerations

Temporary excavations for the installation of the utilities and any manholes should incorporate the use of trench boxes or other positive bracing or shoring methods such as properly designed soldier pile and lagging or steel sheet piling. All temporary excavation bracing or shoring measures required should be designed by an engineer registered in the State of Indiana. The contractor shall be responsible for all construction procedures, means and methods, construction sequencing, dewatering and all safety measures during construction. An open-cut excavation that is properly sloped and/or benched in accordance with OSHA regulations can be used where space allows. The excavations should comply with all federal, state and local safety requirements.

For planning purposes, it is recommended that temporary excavation sideslopes be made no steeper than 2 (horizontal) to 1 (vertical), or flatter as necessary depending upon the specific site conditions. Proper dewatering as described above is essential to maintaining the stability of the temporary excavation side slopes. Materials and heavy equipment should not be stored or staged within at least 10 ft of the crest of the excavations. Some sloughing of loose material should be expected with such slopes and the slopes should be continuously monitored to detect instabilities that may require remediation. A temporary earth retention system may be required in some areas to retain the surrounding soil and to protect nearby buildings, sidewalks, pavements and underground utility lines. The design of the temporary earth retention system is beyond the scope of this study and should be done by the specialty contractor that installs and maintains the system. Atlas is not responsible for the maintenance, stability or safety associated with any temporary excavation.

4.9 Site Grading and Drainage

Proper surface drainage should be provided at the site to minimize increase in moisture content of the backfill and foundation soils. The exterior grades should be sloped away from the structures to prevent ponding of water. Any roof drains or down spouts should be channelled or piped well away from the structures.

5 GENERAL CONSTRUCTION PROCEDURES AND RECOMMENDATIONS

Since this investigation identified actual subsurface conditions only at the test boring locations, it was necessary for our geotechnical engineers to extrapolate these conditions in order to characterize the entire project site. Even under the best of circumstances, the conditions encountered during construction can be expected to vary somewhat from the test boring results and may, in the extreme case, differ to the extent that modifications to the foundation recommendations become necessary. Therefore, we recommend that Atlas be retained as geotechnical consultant through the earth-related phases of this project to correlate actual soil conditions with test boring data, identify variations, conduct additional tests that may be needed and recommend solutions to earth-related problems that may develop.

5.1 Lift Station Excavation

It will be necessary to make a deep excavation for construction of the proposed lift station. A temporary earth retention system may be required to retain the surrounding soil and to protect the existing facilities from undermining and loss of support. Based on the depth to ground water encountered in the test borings across the project site, temporary dewatering measures likely will be required to control ground water for the deep excavation. The design of any temporary earth retention system and dewatering system/program are beyond the scope of this study and should be performed by an experienced specialty contractor that designs, installs and maintains the systems.

It is important to recognize that any temporary earth retention system will permit some movement (both horizontal and vertical) of the earth behind the retention system. The amount of movement of the earth retention system will depend upon the geometry of the system, stiffness of the members, the locations and capacities of the tie-back anchors, the location and loading of existing features, etc., as well as the care and expertise of the installer. It is recommended that the construction documents require that the temporary earth retention system be designed by a registered engineer in the State of Indiana and constructed by a qualified specialty contractor who is well-experienced in this type of work, with only certain performance items specified, such as allowable displacement restrictions (vertical and horizontal deflection), corrosion protection and tie-back testing, and definition regarding responsibility for the design, installation and maintenance of the system.

Where an open-cut excavation is possible, it is recommended that the temporary excavation sideslopes considered for planning purposes be no steeper than 2 (horizontal) to 1 (vertical). Unless detailed analyses are made based upon specific excavation geometry, structure loads, bearing elevations, etc., the crest of an excavation slope should be at least 15 ft away from any existing buildings, structures, equipment, etc. based upon excavation slopes of 2 (horizontal) to 1 (vertical), or flatter and adequate dewatering. The recommendations for temporary excavation slopes assume that the ground surface at the crest of the excavation slope is flat and that no significant, or permanent, surcharge loading is applied. If there is any surcharge loading on the slope or at the crest of the slope, specific analyses shall be required based upon the specific loading conditions, overall extent of the loading, loading intensity, etc. Some sloughing of loose material should be expected with such slopes and the slopes should be maintained as necessary, including flattening the slope if necessary, and continuously monitored for detection of instabilities that may require remediation.

The actual slope configurations for the temporary excavation must be determined by the contractor responsible for the temporary excavation, construction means and methods and site safety and should take into account the locations and loading from other adjacent facilities. The contractor's temporary excavation approach may be different than the approach suggested above for spatial planning purposes. The contractor shall be responsible for the specific means and methods and also has control of the project site on a continuing basis and the ability to make adjustments as determined necessary. All federal, state and local safety regulations should be followed in regard to open-cut excavations.

5.2 Fill Compaction

All engineered fill should be compacted to a dry density of at least 98 percent of the standard Proctor maximum dry density (ASTM D698). The compaction should be accomplished by placing the fill in about 8 in. thick (or less) loose lifts and mechanically compacting each lift to at least the specified minimum dry density. The moisture content of the fill materials should be within a range of about 3 percent below the optimum moisture content to the optimum moisture content. Field density tests should be performed on each lift as necessary to document moisture conditions and the actual compaction that is being achieved.

All soils encountered in the test boring are considered suitable as fill material with the exception of any near surface soils that contains more than 5 percent organic matter. The need for some aeration and moisture conditioning of the soils should be expected before they can be placed and compacted to the specified density.

It is recommended that only lean concrete (minimum compressive strength of at least 2,000 lbs/sq.in.) should be used for any fill that may be required beneath proposed mat foundations for the proposed lift station. It is also recommended that only well-graded granular material, such as pit-run sand and gravel or INDOT No. 53 crushed limestone, should be used to fill other excavations of limited lateral dimensions where proper compaction of cohesive materials is difficult and compaction can only be accomplished with small vibratory equipment.

5.3 Foundation Excavations

The soil at the base of each foundation excavation (mat foundations and spread footings) should be carefully observed and evaluated by a geotechnical engineer or a qualified soils technician to verify that any unsuitable soils are removed at the mat foundation or spread footing locations and that the mat foundations or spread footing will bear on satisfactory material as described in Section 4.2. All old fill, any remnants from previous construction (such as underground utilities, utility backfill, etc.), any soft natural soil or otherwise undesirable material must be removed from beneath the mat foundation and spread footing locations of the proposed structures and replaced with compacted fill as described in Section 5.2, or with lean concrete, so that the foundations will bear on satisfactory material. At the time of such inspection, it will be necessary to make hand auger borings or use a hand penetration device in the base of the foundation excavation to determine whether the soils below the base are satisfactory for foundation support. The necessary depth of penetration will be established during inspection.

Where undercutting is required to remove unsuitable materials, the proposed foundation bearing elevation may be re-established by backfilling after all undesirable materials have been removed. The undercut excavation beneath each spread footing or mat foundation should extend to suitable bearing soils and the dimensions of the excavation base should be determined by imaginary planes extending outward and downward on a 2 (vertical) to 1 (horizontal) slope from the base perimeter of the footing (see Figure 6 in the Appendix). The entire excavation should then be refilled with engineered fill (as described previously, lean concrete should be used for any lift station foundation undercuts). The engineered fill should be limited to well-graded sand and gravel or crushed stone (e.g., INDOT coarse aggregate size No. 53 crushed stone) compacted to the minimum dry density recommended in Section 5.1, or with lean concrete. Special care should be exercised to remove any sloughed, loose or soft materials near the base of the excavation slopes. In addition, special care should be taken to

"tie-in" the compacted fill with the excavation slopes with benches as necessary. This is to ensure that no pockets of loose or soft materials will be left in place along the excavation slopes below the foundation bearing level.

Soils exposed in the bases of all satisfactory foundation excavations should be protected against any detrimental change in condition such as from disturbance, rain and freezing. Surface run-off water should be drained away from the excavation and not allowed to pond. It is recommended that concrete "mud mats" be placed at the bases of the foundation excavations to protect the exposed foundation bearing soils from disturbance from construction activities and from deterioration due to seepage of ground water, surface water, construction traffic, etc.; and to aid in the proper placement of reinforcing steel.

5.4 Construction Dewatering

Depending on the seasonal conditions and the specific locations and depths of the excavations, some seepage of ground water into excavations should be expected due to ground water and/or perched water that may be encountered within sand or silt seams. It is anticipated that in most cases such seepage into excavations can be handled by conventional dewatering methods such as by pumping from sumps. However, in cases where a saturated silt or sand layer is encountered in the base of the excavation, it will not be possible to pump water directly from the base of the excavation without causing deterioration of the subsurface soils. In this case, it will be necessary to pump from a sump located adjacent to the excavation or to depress the ground water level using wells or well-points. The best dewatering system for each case must be determined at the time of construction based upon actual field conditions. If it is necessary to excavate below the static ground water level, it will be necessary to use wells or well points to depress the ground water level. The ground water level should be maintained to a depth of at 3 ft below the bottom of the excavation. A specialty dewatering contractor should be retained to install and maintain the dewatering system.

Temporary dewatering measures should be initiated well in advance of any excavation and the ground water level should be maintained at least 3 ft below the base of the deepest part of the excavation. Excavation should not commence until it is determined or demonstrated that the ground water level is at least 3 ft below the deepest part of the excavation or the ground water level has been sufficiently depressed. It is recommended that the dewatering program be developed, installed and maintained by a specialty dewatering contractor.

It is important to understand that ground water levels higher than those measured at the time of this investigation may be possible due to seasonal variations in the ground water level. The contractor should be prepared for variable ground water conditions, including cases as described above, and variable temporary dewatering conditions. It is recommended that an experienced specialty dewatering contractor be retained to provide temporary dewatering measures. It will not be possible to pump water directly from the base of an excavation that extends into, or even within several feet above, a saturated granular zone without causing deterioration of the foundation soil and possibly heaving of the soils and development of a quick condition.

6 FIELD INVESTIGATION

Thirty-two test borings were drilled at the approximate locations shown on the Boring Plans (Figures 2 and 3 in the Appendix). The borings were extended to depths of 15 ft to 40 ft below the existing grade. Split-barrel samples were obtained by the Standard Penetration Test procedures (ASTM D1586) at 2.5 ft and 5.0 ft intervals. In addition to the 32 test borings that were drilled specifically for this project, this study also includes 12 test borings that were previously drilled at the project site.

The test boring logs, which show visual descriptions of all soil strata encountered using the Unified Soil Classification System (ASTM D2488), have been included in the Appendix. Ground water observations, sampling information and other pertinent field data and observations are also included. In addition, a "Field Classification System for Soil Exploration" document defining the terms and symbols used on the test boring log and explaining the Standard Penetration Test procedure is provided immediately following the Test Boring Logs.

7 LABORATORY INVESTIGATION

The soil samples retained from the test borings and field sampling were inspected and classified by a geotechnical engineer in accordance with the Unified Soil Classification System (ASTM D2488), and the test boring logs were edited as necessary. To aid in classifying the soils and to determine general engineering soil characteristics of the soils, physical laboratory tests were performed on selected soil samples. The physical laboratory tests performed on the selected soil samples are summarized in the following table.

Table No. 3 – Laboratory Testing Program

Laboratory Test Description	Test Method Designation
Standard Practice for Description and Identification of Soils by Visual-Manual Procedures	ASTM D2488
Moisture Content Test of Soils	ASTM D2216
Atterberg Limits Tests	ASTM D4318
Unconfined Compressive Strength of Soil	ASTM D2166
Particle-Size Distribution of Soils Using Sieve Analysis	ASTM D6913
Marl Content (CaCO ₃ /MgCO ₃ Content)	ASTM D4373
Organic Content (Loss-on-Ignition Test)	ASTM D2974
Calibrated Hand Penetrometer Test ("Pocket Penetrometer Test")	NA

NA – No standardized test method available.

The results of the physical laboratory tests are included on the Test Boring Logs and laboratory test results sheets in the Appendix.

8 LIMITATIONS OF STUDY

An inherent limitation of any geotechnical engineering study is that conclusions must be drawn on the basis of data collected at a limited number of discrete locations. The recommendations provided in this report were developed from the information obtained from the test boring that depict subsurface conditions only at this specific location and at the particular time designated on the test boring log. Soil and ground water conditions at other locations may differ from conditions occurring at these test boring locations. The nature and extent of variations between the test borings may not become evident until the course of construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report after performing on-site observations during the excavation period and noting the characteristics of any variation.

Any comments or recommendations made herein regarding construction related issues or temporary conditions are solely for the purpose of evaluating feasibility and constructability and planning the design of the proposed facilities. The scope of this investigation is not sufficient to identify all potential construction related issues, variations, anomalies, etc. or all factors that may affect construction means, methods and costs.

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties either express or implied. This company is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration and laboratory test data presented in this report.

The scope of our services does not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, ground water or surface water within or beyond the site studied.

Atlas assumes no responsibility for any construction procedures, temporary excavations (including utility trenches), temporary dewatering or site safety during or after construction. The contractor shall be solely responsible for all construction procedures, construction means and methods, construction sequencing and for safety measures during construction as well as the protection of all existing facilities. All applicable federal, state and local laws and regulations regarding construction safety must be followed, including current Occupational Safety and Health Administration (OSHA) Regulations including OSHA 29 CFR Part 1926 "Safety and Health Regulations for Construction", Subpart P "Excavations", and/or successor regulations. The Contractor shall be solely responsible for designing and constructing stable, temporary excavations and should brace, shore, slope, or bench the sides of the excavations as necessary to maintain stability of the excavation sides and bottom and to protect the integrity of all existing facilities (i.e., roadways, utilities, etc.).

Appendix

- Figure 1: Vicinity Map
- Figure 2: Boring Plan – Overall Site
- Figure 3: Boring Plan – Wastewater Treatment Plant
- Figure 4: Lateral Earth Pressure Against Below-Grade Wall Assuming Undrained Backfill with Hydrostatic Pressure
- Figure 5: Design Illustration – Uplift Considerations of Submerged Below-Grade Structure
- Figure 6: Design Illustration – Footings with Undercuts

Test Boring Logs for This Study (32)

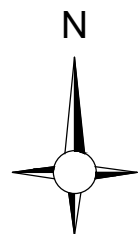
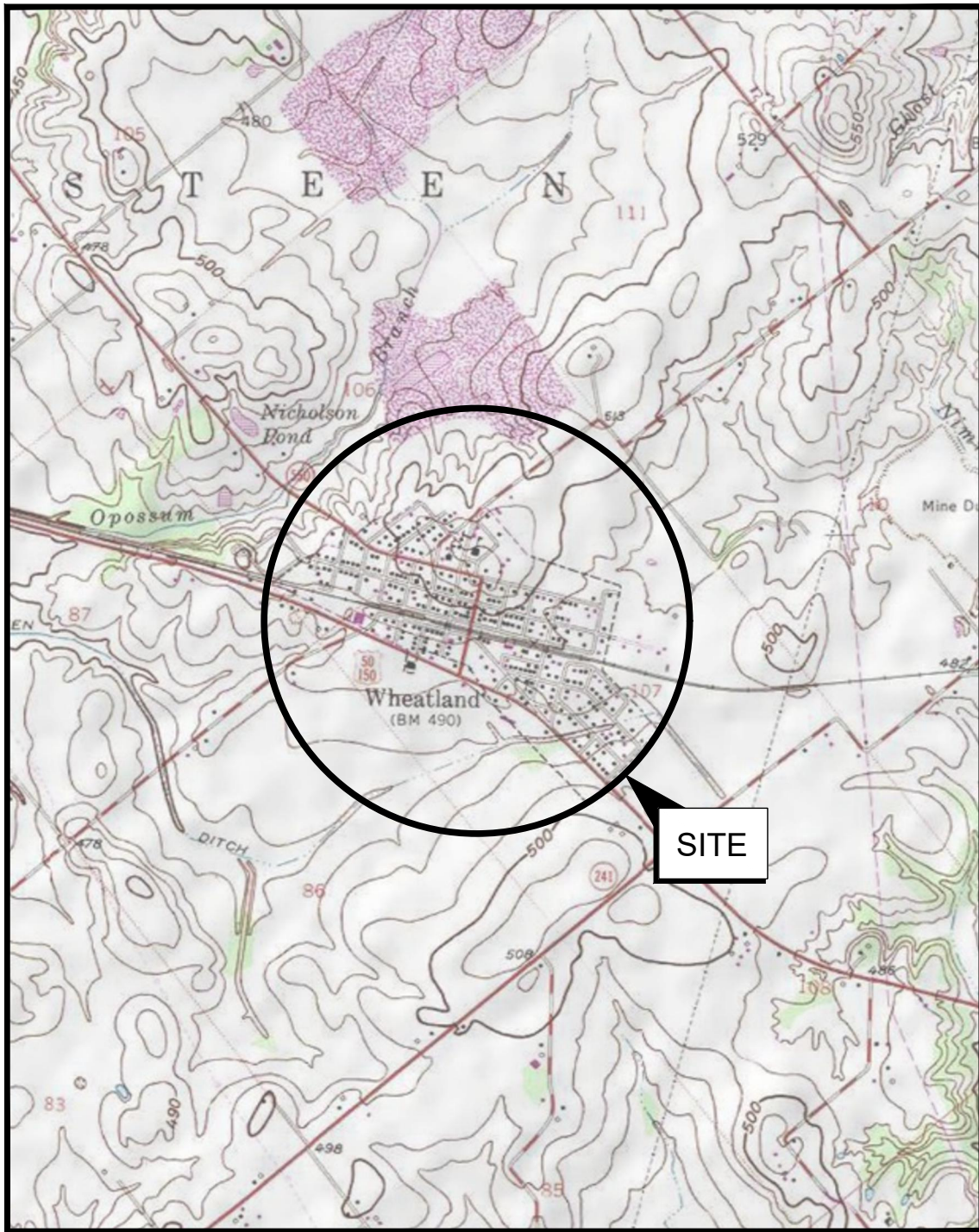
Test Boring Logs for Previous Study (12)

“Field Classification System for Soil Exploration”

Unconfined Compressive Strength Test Reports (5)

Grain Size Distribution Test Reports (7)

“Important Information About Your Geotechnical Engineering Report”



H:\2022\TOWN OF WHEATLAND\170GC01517\170GC01517-VIC.DWG, FIG 1

VICINITY MAP

PROPOSED WASTEWATER TREATMENT PLANT AND GRAVITY SEWER SYSTEM
WHEATLAND, INDIANA

Project Number: 170GC01517		Drn. By: BM
Date: 11/16/2022	Scale: 1"=2,000'	Ckd. By: DM



1

LEGEND:

- B-101 TEST BORING
Boring Identification
- B-1 PREVIOUS TEST BORINGS -
ATLAS PROJECT #170GC01308
Boring Identification

NOTE: ALL LOCATIONS ARE APPROXIMATE



BORING PLAN - OVERALL SITE
 PROPOSED WASTEWATER TREATMENT PLANT AND GRAVITY SEWER SYSTEM
 WHEATLAND, INDIANA

Project Number: 170GC01517	
Date: 01/05/2023	
Drn. By: BM	Ckd. By: DM
Scale: AS SHOWN	
Figure: 2	

H:\2023\TOWN OF WHEATLAND\170GC01517\170GC01517-BPLAN.DWG, FIG 2

SCALE: 1" = 400'

LEGEND:

B-101 TEST BORING

Boring Identification

NOTE: ALL LOCATIONS ARE APPROXIMATE

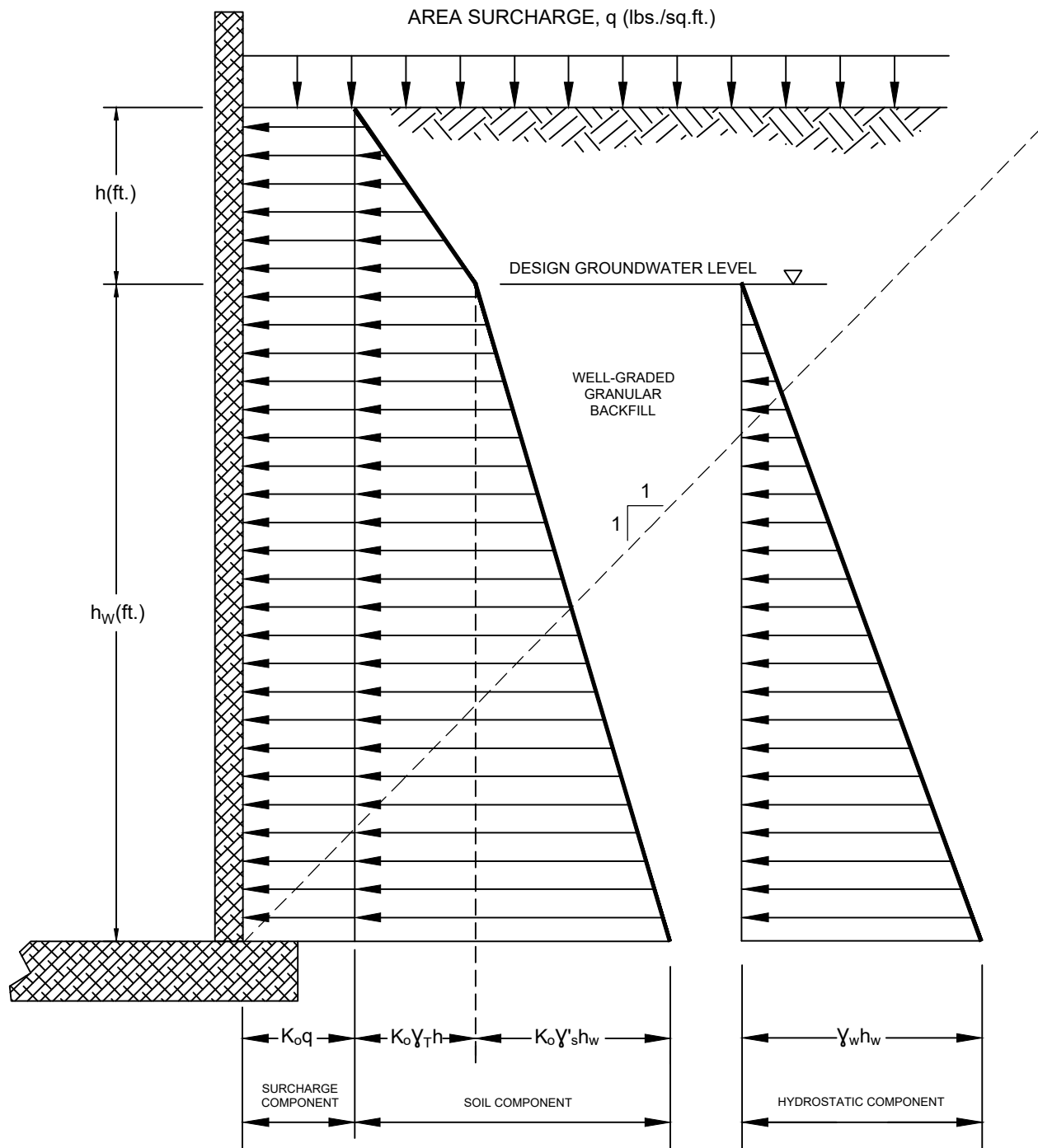


H:\2022\TOWN OF WHEATLAND\170GC01517\170GC01517-BPLAN2.DWG, FIG 3

BORING PLAN - WASTEWATER TREATMENT PLANT
 PROPOSED WASTEWATER TREATMENT PLANT AND GRAVITY
 SEWER SYSTEM
 WHEATLAND, INDIANA

Project Number: 170GC01517	Scale: AS SHOWN	Drn. By: BM
Date: 12/07/2022		Ckd. By: DM





h_w = DEPTH FROM DESIGN HIGH GROUND WATER LEVEL TO BASE OF WALL (ft.)

γ'_s = SUBMERGED SOIL UNIT WEIGHT (lbs./cu.ft.)

γ_w = UNIT WEIGHT OF WATER (lbs./cu.ft.)

γ_T = TOTAL SOIL UNIT WEIGHT (lbs./cu.ft.)

K_o = COEFFICIENT OF LATERAL EARTH PRESSURE AT-REST

q = AREA SURCHARGE, q (lbs./sq.ft.)

H:\2023\TOWN OF WHEATLAND\170GC01517\170GC01517-BPLAN.DWG, W-HYDRO

**LATERAL EARTH PRESSURE AGAINST BELOW-GRADE WALL
ASSUMING UNDRAINED BACKFILL W/ HYDROSTATIC PRESSURE**
PROPOSED WASTEWATER TREATMENT PLANT AND GRAVITY SEWER SYSTEM
WHEATLAND, INDIANA

Project Number:
170GC01517

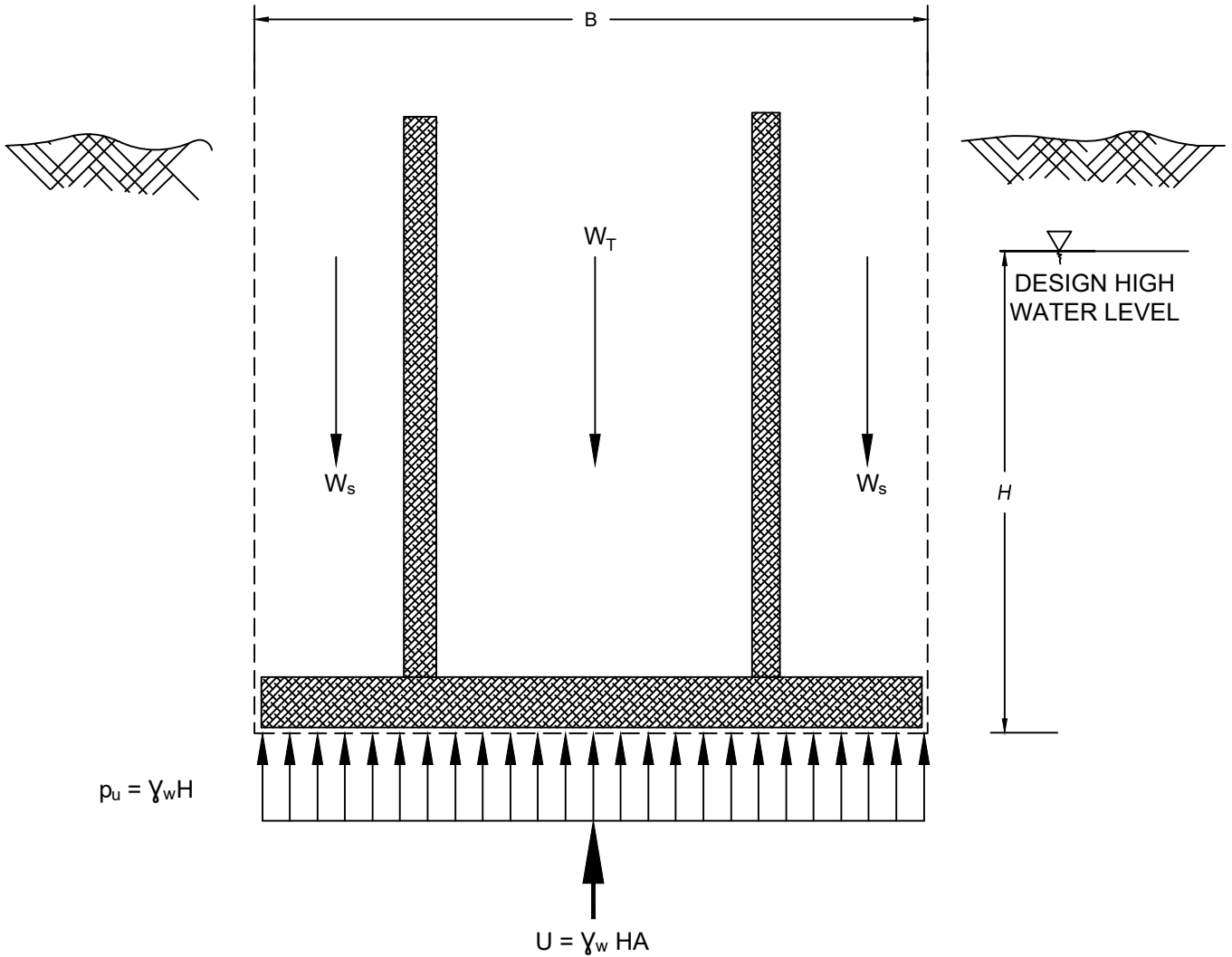
Date:
01/05/2023

Scale:
NOT TO SCALE

Drn. By:
BM

Ckd. By:
DM





NOTE: FOR THIS DESIGN APPROACH, TOTAL (NOT BUOYANT) WEIGHTS OF SOIL AND STRUCTURE MATERIALS WITHIN THE DASHED LINES SHOULD BE USED

- H = DEPTH FROM DESIGN HIGH GROUND WATER LEVEL TO BOTTOM OF STRUCTURE (ft.)
- γ_w = UNIT WEIGHT OF WATER (lbs./cu. ft.)
- p_u = UPLIFT PRESSURE AT BASE OF FOUNDATION OR SLAB (lbs./sq.ft.)
- U = TOTAL UPLIFT FORCE (lbs.)
- W_T = WEIGHT OF STRUCTURE (lbs.)
- W_s = WEIGHT OF SOIL OVER FOUNDATION SLAB (lbs.)
- A = AREA OF STRUCTURE BASE (sq.ft.)

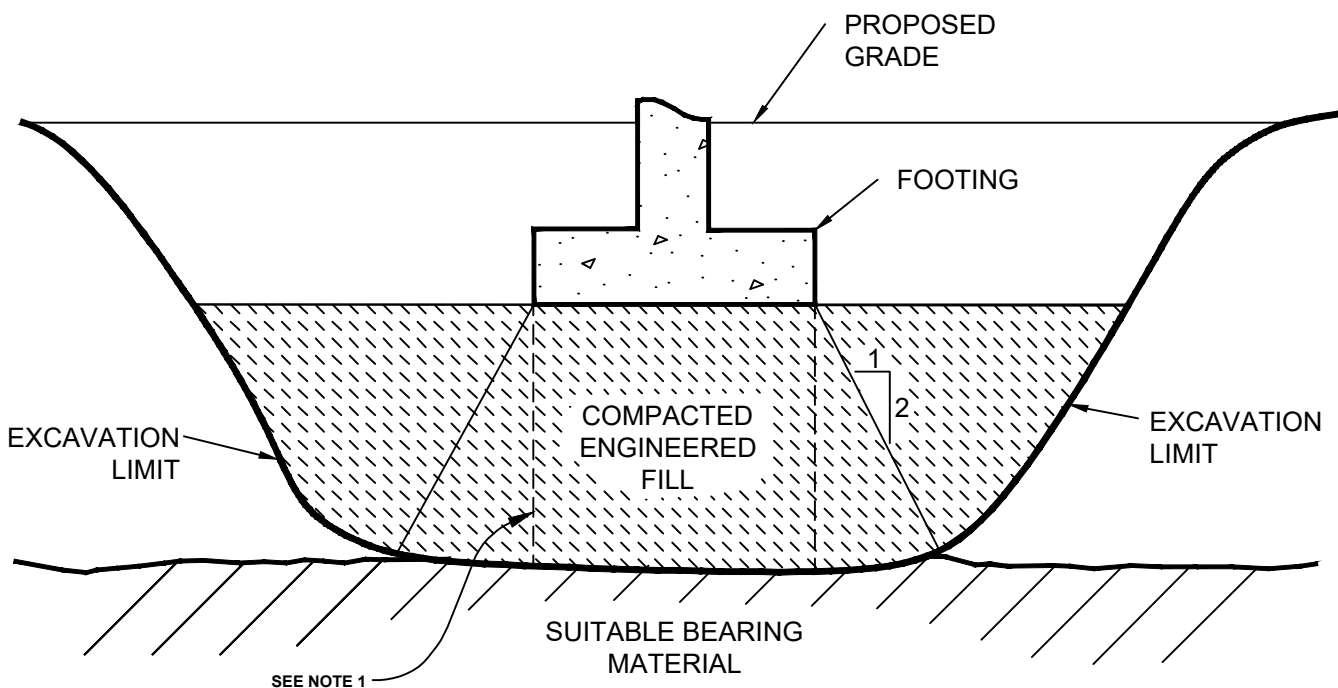
DESIGN ILLUSTRATION-UPLIFT CONSIDERATION OF SUBMERGED BELOW-GRADE STRUCTURE

PROPOSED WASTEWATER TREATMENT PLANT AND GRAVITY SEWER SYSTEM
WHEATLAND, INDIANA

Project Number: 170GC01517		Drn. By: BM
Date: 11/30/2022	Scale: NOT TO SCALE	Ckd. By: DM



H:\2022\TOWN OF WHEATLAND\170GC01517\170GC01517-BPLAN.DWG, UPLIFT



NOTE 1: Expanded (2V:1H) undercut zone not necessary where concrete/lean concrete is used as undercut backfill in lieu of engineered fill and where adequate bearing soils are exposed at the base of undercut. Refer to report Section 5.3.

H:\2022\TOWN OF WHEATLAND\170GC01517\170GC01517-UNCUT.DWG, UNCUT

**DESIGN ILLUSTRATION
FOOTINGS WITH UNDERCUTS**

PROPOSED WASTEWATER TREATMENT PLANT AND GRAVITY SEWER SYSTEM
WHEATLAND, INDIANA

Project Number: 170GC01517		Drn. By: BM
Date: 01/05/2023	Scale: NOT TO SCALE	Ckd. By: DM





CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-101
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/20/22 Hammer Wt. 140 lbs.
 Date Completed 12/20/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 479												
4 in. Topsoil	478.7	0.3										
Brown, moist, medium stiff, CLAY (CH)	476.0	3.0		1	SS				3-4-6	25.7	2.5	Ground surface elevation estimated from plans provided by client. Sample No. 1: Atterberg Limits: LL=67 PL=25 PI=42 Sample No. 3: Atterberg Limits: LL=39 PL=17 PI=22 Unconfined Compressive Strength = 1.2 tsf Dry Density = 105.5 pcf Sample No. 5: Atterberg Limits: LL=50 PL=16 PI=34 Sample Nos. 8 & 9: Finer than #200 Sieve = 16.9% Sample Nos. 10 & 11: Finer than #200 Sieve = 7.7% Sample No. 16: Unconfined Compressive Strength = 1.5 tsf Dry Density = 113.6 pcf
Brown and gray, moist, medium stiff, SILTY CLAY (CL) with trace sand	473.5	5.5	5	2	SS				3-3-3	24.8	1.5	
Gray, moist, medium stiff, SILTY CLAY (CL) with trace sand	468.5	10.5	10	3	SS				3-3-4	22.1	1.0	
Gray, moist, medium stiff, SILTY CLAY (CL) with trace sand	468.5	10.5	10	4	SS				2-3-3	21.6	1.5	
Brown and gray, moist, very soft, CLAY (CH)	466.0	13.0	13	5	SS				2-1-1	34.9	0.5	
Gray, moist, very soft, SILTY CLAY (CL) with trace sand and gravel	463.0	16.0	15	6	SS				1-1-2	29.1	0.5	
Gray, moist, very stiff, SILTY CLAY (CL) with some sand and trace gravel	461.0	18.0	18	7	SS				3-4-12	19.7		
Gray, wet, medium dense to loose, SILTY SAND (SM)	456.0	23.0	20	8	SS				5-7-10			
Gray, wet, loose to dense, SAND (SP-SM) with trace silt and gravel	456.0	23.0	20	9	SS			▽	5-5-5			
Gray, wet, loose to dense, SAND (SP-SM) with trace silt and gravel	456.0	23.0	25	10	SS			⊠	5-4-6			
Gray, wet, loose to dense, SAND (SP-SM) with trace silt and gravel	456.0	23.0	25	11	SS				5-6-7			
Gray, wet, loose to dense, SAND (SP-SM) with trace silt and gravel	456.0	23.0	30	12	SS				5-6-9			
Gray, wet, loose to dense, SAND (SP-SM) with trace silt and gravel	456.0	23.0	30	13	SS				13-19-25			
Gray, wet, loose to dense, SAND (SP-SM) with trace silt and gravel	456.0	23.0	35	14	SS				5-9-7			
Gray, slightly moist, medium stiff to stiff, SILTY CLAY (CL) with little sand and trace gravel	443.5	35.5	35	15	SS				3-4-6	20.0	1.5	
Bottom of Test Boring at 40.0 ft.	439.0	40.0	40	16	SS				4-6-7	17.9	2.5	

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 18.0 ft.
- ▽ At Completion 21.8 ft.
- ▽ After -- hours -- ft.
- ⊠ Cave Depth 23.5 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-102
 PROJECT NAME Proposed WWTP and Gravity Sewer System JOB # 170GC01517
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/1/22 Hammer Wt. 140 lbs.
 Date Completed 12/1/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 480												
6 in. Topsoil	479.5	0.5										Ground surface elevation estimated from plans provided by client. Sample No. 2: Atterberg Limits: LL=38 PL=23 PI=15
Dark brown, moist, medium stiff, SILTY CLAY (CL) with trace sand	477.0	3.0		1	SS	X	■		3-4-3	20.8	3.5	
Light brown and gray, moist, soft, SILTY CLAY (CL)	474.0	6.0	5	2	SS	X	■		2-2-3	27.5	1.0	
Gray, moist, medium stiff to very soft, SILTY CLAY (CL) with trace sand				3	SS	X	■		3-3-3	22.2	1.0	
			10	4	SS	X	■		3-1-2	21.2	1.0	
				5	SS	X	■		2-1-2	26.4	1.0	
			15	6	SS	X	■		0-2-2	23.5	1.25	
Gray, wet, medium dense, SILTY SAND (SM) with trace gravel	461.5	18.5					●					
Bottom of Test Boring at 20.0 ft.	460.0	20.0	20	7	SS	X	■		5-5-7			

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 17.0 ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth -- ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-103
 PROJECT NAME Proposed WWTP and Gravity Sewer System JOB # 170GC01517
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 11/30/22 Hammer Wt. 140 lbs.
 Date Completed 11/30/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 479												
6 in. Topsoil	478.5	0.5										Ground surface elevation estimated from plans provided by client. Sample No. 3: Atterberg Limits: LL=45 PL=18 PI=27 Unconfined Compressive Strength = 0.8 tsf Dry Density = 100.9 pcf Sample No. 5: Atterberg Limits: LL=58 PL=16 PI=42 Unconfined Compressive Strength = 0.8 tsf Dry Density = 91.3 pcf
Brown, moist, stiff, SILTY CLAY (CL)	476.0	3.0		1	SS				7-8-7	28.4	2.25	
Light brown and gray, moist, soft, SILTY CLAY (CL)	473.0	6.0	5	2	SS				2-3-2	26.0	0.5	
Gray, moist, medium stiff to soft, SILTY CLAY (CL)	468.5	10.5	10	3	SS				3-4-3	23.1	1.0	
Gray, moist, very soft, CLAY (CH)	466.0	13.0	15	4	SS				3-2-3	22.9	1.75	
Tan and gray, moist, very soft, SILTY CLAY (CL)	460.5	18.5	20	5	SS				2-1-2	31.3	0.5	
				6	SS				2-1-1	30.6	0.5	
Gray, slightly moist, stiff to hard, SILTY CLAY (CL) with little sand and trace gravel	454.0	25.0	25	7	SS				5-6-8	13.4	2.0	
Bottom of Test Boring at 25.0 ft.				8	SS				10-13-25	14.7	2.0	

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 23.5 ft.
- ∇ At Completion 22.0 ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 22.2 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-104
 PROJECT NAME Proposed WWTP and Gravity Sewer System JOB # 170GC01517
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/1/22 Hammer Wt. 140 lbs.
 Date Completed 12/1/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 479												
6 in. Topsoil	478.5	0.5										
Brown, moist, medium stiff, CLAY (CH)	476.0	3.0		1	SS	X	█		2-4-3	28.6	1.75	Ground surface elevation estimated from plans provided by client. Sample No. 1: Atterberg Limits: LL=59 PL=27 PI=32 Sample No. 5: Atterberg Limits: LL=58 PL=17 PI=41 Unconfined Compressive Strength = 0.8 tsf Dry Density = 94.6 pcf
Tan, moist, medium stiff, SILTY CLAY (CL)	473.5	5.5	5	2	SS	X	█		3-3-4	26.9	1.0	
Gray, moist, medium stiff to soft, SILTY CLAY (CL)	468.5	10.5	10	3	SS	X	█		3-3-5	22.4		
Gray and brown, moist, soft, CLAY (CH)	466.0	13.0	15	4	SS	X	█		3-2-3	25.8	1.0	
Brown and gray, moist, soft, SILTY CLAY (CL) with trace sand	460.5	18.5	20	5	SS	X	█		1-2-3	28.2	1.0	
Gray, slightly moist, stiff, SILTY CLAY (CL) with little sand and trace gravel	459.0	20.0	20	6	SS	X	█		1-2-2	28.7		
Bottom of Test Boring at 20.0 ft.				7	SS	X	█		5-6-8	15.0	2.25	

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 17.8 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-105
 PROJECT NAME Proposed WWTP and Gravity Sewer System JOB # 170GC01517
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/7/22 Hammer Wt. 140 lbs.
 Date Completed 12/7/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION		Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 486													
5 in. Asphalt over 10 in. Aggregate Base		484.7	1.3										Ground surface elevation estimated from plans provided by client. Sample No. 6: Atterberg Limits: LL=35 PL=17 PI=18
Gray, brown, and dark brown, moist, silty clay with trace sand (FILL)		482.5	3.5		1	SS			5-3-3	20.9			
Brown, moist, medium stiff, SILTY CLAY (CL)		480.5	5.5	5	2	SS			4-4-5	22.7	1.5		
Brown and gray, moist, stiff to medium stiff, SILTY CLAY (CL)					3	SS			3-5-6	24.4	1.75		
				10	4	SS			2-3-4	18.9	1.5		
		473.0	13.0		5	SS			3-4-5	18.2	2.5		
Brown, moist, medium stiff, SILTY CLAY (CL)		470.5	15.5	15	6	SS			3-3-5	26.0	1.25		
Brown and gray, moist, stiff, SILTY CLAY (CL) with little sand and trace gravel		468.0	18.0		7	SS			4-6-7	17.6	1.75		
Brown, wet, medium dense, CLAYEY SAND (SC)		466.0	20.0	20	8	SS			5-6-7				
Bottom of Test Boring at 20.0 ft.													

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ▽ At Completion 17.3 ft.
- ▽ After -- hours -- ft.
- ⊠ Cave Depth 18.2 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-106
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/8/22 Hammer Wt. 140 lbs.
 Date Completed 12/8/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 484												
6 in. Asphalt	483.5	0.5										Ground surface elevation estimated from plans provided by client. Sample No. 3: Atterberg Limits: LL=33 PL=15 PI=18
Gray, slightly moist, silty clay with little sand (FILL)	480.5	3.5		1	SS				8-6-4	17.3		
Brown and gray, moist, medium stiff to soft, SILTY CLAY (CL)			5	2	SS				3-2-4	24.6	1.0	
				3	SS				3-2-3	21.2	1.5	
Gray and brown, moist, medium stiff, SILTY CLAY (CL) with trace sand	475.5	8.5		4	SS				3-2-4	18.8	1.5	
	473.5	10.5	10	5	SS				2-3-3	24.2	1.0	
Orangish brown, moist, medium stiff, SANDY SILTY CLAY (CL)	471.0	13.0		6	SS				2-2-1			
Orangish brown, moist, very loose, CLAYEY SAND (SC)	468.5	15.5	15	7	SS				6-7-3			
Gray, wet, loose, SILTY SAND (SM)	466.0	18.0		8	SS				2-3-4	19.7	1.0	
Gray, moist, medium stiff, SILTY CLAY (CL) with trace sand and gravel	464.0	20.0	20									
Bottom of Test Boring at 20.0 ft.												

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 17.5 ft.
- ▽ At Completion 15.0 ft.
- ▽ After -- hours -- ft.
- ⊕ Cave Depth 16.0 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-107
 PROJECT NAME Proposed WWTP and Gravity Sewer System JOB # 170GC01517
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/7/22 Hammer Wt. 140 lbs.
 Date Completed 12/7/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 493												
6 in. Asphalt	492.5	0.5										Ground surface elevation estimated from plans provided by client.
Brown and gray, moist, medium stiff, SILTY CLAY (CL)	490.0	3.0		1	SS				4-4-4	29.0		
Brown, moist, medium stiff, SILTY CLAY (CL)			5	2	SS				3-4-4	26.6	1.0	
				3	SS				2-3-3	20.7	1.0	
Brown, moist, soft, SILTY CLAY (CL) with trace sand	485.0	8.0		4	SS				3-2-3	21.6	1.5	
	482.0	11.0	10	5	SS				3-4-6	15.1	3.5	
Brown and orangish brown, moist, medium stiff to stiff, SILTY CLAY (CL) with sandstone fragments and trace sand				6	SS				4-5-6	40.2	2.25	
	477.0	16.0	15	7	SS				15-43-50/0.2	14.1		
Tan, severely weathered, SHALE				8	SS				50/0.2			
	472.5	20.5	20	9	SS				50/0.2			
Gray, weathered, SHALE				10	SS				50/0.2			
Bottom of Test Boring at 23.7 ft.	469.3	23.7										Auger refusal at 23.7 ft.

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 16.0 ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 19.2 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-108
 PROJECT NAME Proposed WWTP and Gravity Sewer System JOB # 170GC01517
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/7/22 Hammer Wt. 140 lbs.
 Date Completed 12/7/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION		Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 482													
6 in. Asphalt over 8 in. Aggregate Base		480.8	1.2										Ground surface elevation estimated from plans provided by client. Sample No. 3: Atterberg Limits: LL=33 PL=21 PI=12
Gray and dark gray, slightly moist, silty clay with trace sand and gravel (FILL)		478.5	3.5		1	SS				2-3-5	24.1		
Brown and gray, moist, medium stiff to soft, SILTY CLAY (CL)		471.5	10.5	5	2	SS				2-3-4	26.9	1.5	
					3	SS				2-2-3	26.0		
					4	SS			1-2-3	29.8	1.0		
Gray and brown, moist, soft, SILTY CLAY (CL) with little sand		466.0	16.0	10	5	SS				2-2-2	24.3	1.5	
Brown, moist, medium stiff, SILTY CLAY (CL) with trace sand					6	SS			▽	1-2-3	19.9	1.5	
		Brown, moist, very stiff, SILTY CLAY (CL) with sandstone fragments and trace sand		464.0	18.0	15	7	SS			3-2-4	20.2	
Bottom of Test Boring at 20.0 ft.		462.0	20.0	20	8	SS				8-10-15	19.3	2.0	

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 16.0 ft.
- ▽ At Completion 14.0 ft.
- ▽ After -- hours -- ft.
- ⊠ Cave Depth 18.5 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-109
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/22 Hammer Wt. 140 lbs.
 Date Completed 12/6/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 488												
12 in. Asphalt	487.0	1.0										
Dark gray, moist, silty clay (FILL)	484.5	3.5		1	SS	X			5-2-3	24.7		Ground surface elevation estimated from plans provided by client. Sample No. 2: Atterberg Limits: LL=51 PL=24 PI=27 Organic Content = 1.5% Sample No. 3: Atterberg Limits: LL=36 PL=20 PI=16
Gray, moist, medium stiff, CLAY (CH) with trace organics	482.5	5.5	5	2	SS	X			3-2-4	30.2	1.0	
Brown and gray, moist, soft, SILTY CLAY (CL)				3	SS	X			3-2-2	22.7	0.75	
	477.5	10.5	10	4	SS	X			3-3-2	21.5	1.5	
Gray and brown, moist, medium stiff, SILTY CLAY (CL) with trace sand				5	SS	X			3-4-2	22.7	1.5	
	473.0	15.0	15	6	SS	X			2-3-5	19.9	2.25	
Bottom of Test Boring at 15.0 ft.												

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 13.2 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-110
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/5/22 Hammer Wt. 140 lbs.
 Date Completed 12/5/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 479												
10 in. Asphalt	478.2	0.8										Ground surface elevation estimated from plans provided by client.
Dark gray, moist, silty clay (FILL)	475.5	3.5		1	SS				7-5-4	27.0		
Brown and gray, moist, medium stiff, SILTY CLAY (CL)	473.5	5.5	5	2	SS				4-3-4	27.4	1.0	
Brown, moist, soft, SILTY CLAY (CL)	470.5	8.5		3	SS				2-2-3	18.6	1.75	
Gray and brown, moist, medium stiff, SILTY CLAY (CL) with trace sand	468.5	10.5	10	4	SS				3-2-4	18.2	2.25	
Brown and gray, moist, very soft, CLAY (CH) with trace sand	466.0	13.0		5	SS				3-2-1	38.7	1.0	
Gray and brown, moist, very soft, SILTY CLAY (CL) with some sand	463.0	16.0	15	6	SS				1-2-1	23.7		
Orangish brown, wet, very loose, CLAYEY SAND (SC) with trace gravel	458.0	21.0	20	7	SS				2-2-2			
Gray, slightly moist, stiff, SILTY CLAY (CL) with trace sand and gravel	458.0	21.0		8	SS				3-2-2			
	454.4	24.6		9	SS				3-4-7	17.6	2.0	
				10	SS				4-6-50/0.1	16.0	3.0	
Bottom of Test Boring at 24.6 ft.												

Sample Nos. 7 & 8:
 Finer than #200 Sieve = 18.2%

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 16.0 ft.
- ▽ At Completion 19.0 ft.
- ▽ After -- hours -- ft.
- ⊠ Cave Depth 21.0 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-111
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/2/22 Hammer Wt. 140 lbs.
 Date Completed 12/2/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 485												
15 in. Asphalt	484.6	0.4										Ground surface elevation estimated from plans provided by client. Sample No. 5: Atterberg Limits: LL=61 PL=17 PI=44 Sample No. 6: Finer than #200 Sieve = 14.4%
Gray, moist, medium stiff, SILTY CLAY (CL)	482.0	3.0		1	SS				4-4-5	30.5	2.0	
Brown, moist, soft, SILTY CLAY (CL)	479.5	5.5	5	2	SS				2-2-2	28.1	0.5	
Brown and gray, moist, soft to medium stiff, SILTY CLAY (CL)	474.5	10.5	10	3	SS				2-2-2	19.8	1.5	
Brown and gray, moist, medium stiff, CLAY (CH)	472.0	13.0	13	4	SS				3-2-4	20.2	1.5	
Dark brown, moist, loose, CLAYEY SAND (SC) with trace gravel	469.5	15.5	15	5	SS				3-3-4	29.8	1.5	
Orangish brown, brown, and gray, severely weathered, SANDSTONE	467.0	18.0	18	6	SS				4-3-6			
Tan, weathered, SHALE			20	7	SS				2-3-4	21.0		
			25	8	SS				13-44-50/0.1	15.4		
			30	9	SS				50/0.3			
			35	10	SS				50/0.2	13.0		
Gray, weathered, SHALE	457.0	28.0		11	SS				50/0.3			
				12	SS				50/0.3			
				13	SS				50/0.3	11.5		
Bottom of Test Boring at 35.0 ft.	450.0	35.0		14	SS				50/0.1			

Sample Type
 SS - Driven Split Spoon
 ST - Pressed Shelby Tube
 CA - Continuous Flight Auger
 RC - Rock Core
 CU - Cuttings
 CT - Continuous Tube

Depth to Groundwater
 ● Noted on Drilling Tools None ft.
 ∇ At Completion None ft.
 ▼ After -- hours -- ft.
 ☒ Cave Depth -- ft.

Boring Method
 HSA - Hollow Stem Augers
 CFA - Continuous Flight Augers
 CA - Casing Advancer
 MD - Mud Drilling
 HA - Hand Auger



CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-112
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/22 Hammer Wt. 140 lbs.
 Date Completed 12/6/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 480												
6 in. Asphalt	479.5	0.5										Ground surface elevation estimated from plans provided by client.
Dark gray, slightly moist, silty clay with trace sand (FILL)	476.5	3.5		1	SS	X			7-4-4	14.6		
Brown and gray, moist, soft, SILTY CLAY (CL)	474.0	6.0	5	2	SS	X			3-1-3	26.7	0.25	
Brown, moist, medium stiff to soft, SILTY CLAY (CL)	469.5	10.5	10	3	SS	X			3-2-4	17.8	1.0	
Gray and brown, moist, medium stiff, SILTY CLAY (CL) with trace sand	467.0	13.0		4	SS	X			3-2-3	18.5	1.25	
Brown and gray, moist, medium stiff, SANDY SILTY CLAY (CL) with sandstone fragments	465.0	15.0	15	5	SS	X			3-4-3	22.3	1.5	
Bottom of Test Boring at 15.0 ft.												

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 12.8 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-113
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/5/22 Hammer Wt. 140 lbs.
 Date Completed 12/5/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 483												
9 in. Asphalt	482.2	0.8										Ground surface elevation estimated from plans provided by client.
Tan, moist, silty clay with brick fragments (FILL)	479.5	3.5		1	SS				11-7-6			
Brown, moist, medium stiff, SILTY CLAY (CL)			5	2	SS				3-3-5	24.5	1.25	
				3	SS				3-5-5	16.7	1.0	
				4	SS				3-3-3	15.9	1.5	
Brown and gray, moist, soft, SILTY CLAY (CL) with trace sand	472.5	10.5	10	5	SS				2-1-3	24.6	1.5	
				6	SS				2-3-4	19.8	0.75	
Light gray, moist, medium stiff, SANDY SILTY CLAY (CL)	469.5	13.5										
Gray, slightly moist, medium stiff to stiff, SILTY CLAY (CL) with trace sand and gravel	467.5	15.5	15	7	SS				3-4-5	16.8		
				8	SS				5-6-7	16.9	2.5	
Brown and gray, severely weathered, SHALE	462.5	20.5	20									
Brown and gray, weathered, SHALE	460.0	23.0		9	SS				9-13-23	82.3		
				10	SS				15-17-19	19.5		
Bottom of Test Boring at 25.0 ft.	458.0	25.0	25									

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 23.0 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-114
 PROJECT NAME Proposed WWTP and Gravity Sewer System JOB # 170GC01517
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/22 Hammer Wt. 140 lbs.
 Date Completed 12/6/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
6 in. Asphalt	477.5	0.5										
Gray, moist, medium stiff to soft, SILTY CLAY (CL) - trace organics below 3 ft.				1	SS				4-3-5	21.8		Ground surface elevation estimated from plans provided by client.
	472.5	5.5	5	2	SS				3-2-3	24.2	1.5	Sample No. 2: Organic Content = 1.7%
Light gray, moist, soft, SILTY CLAY (CL) with trace organics and gravel				3	SS				2-2-3	20.6	2.0	Sample No. 3: Organic Content = 1.6%
	469.5	8.5										
Dark brown and brown, moist, medium stiff, SILTY CLAY (CL)				4	SS				3-2-4	22.4	1.5	
	467.5	10.5	10									
Light gray, moist, medium stiff, SILTY CLAY (CL)				5	SS				3-3-4	24.2	1.5	Sample No. 5: Atterberg Limits: LL=44 PL=15 PI=29
	465.0	13.0										
Brown and gray, moist, medium stiff, SANDY SILTY CLAY (CL)				6	SS				3-3-3	18.0		
	462.5	15.5	15									
Gray, slightly moist, stiff to medium stiff, SILTY CLAY (CL) with trace sand and gravel				7	SS				3-4-7	20.2	1.5	
				8	SS				3-4-5	18.0	2.0	
	457.0	21.0	20									
Tan weathered, SHALE				9	SS				50/0.3	9.9		
				10	SS				50/0.1			Auger refusal at 23.6 ft.
Bottom of Test Boring at 23.6 ft.	454.4	23.6										

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 16.0 ft.
- ▽ At Completion 18.0 ft.
- ▽ After -- hours -- ft.
- ⊠ Cave Depth 21.2 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-115
 PROJECT NAME Proposed WWTP and Gravity Sewer System JOB # 170GC01517
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/5/22 Hammer Wt. 140 lbs.
 Date Completed 12/5/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 479												
7.5 in. Asphalt over 8 in. Aggregate Base	477.7	1.3										Ground surface elevation estimated from plans provided by client.
Gray, slightly moist, silty clay with trace sand and gravel (FILL)	475.5	3.5		1	SS	X			7-5-6	19.3		
Brown, moist, soft to medium stiff, SILTY CLAY (CL)	468.0	11.0	5	2	SS	X			3-2-2	22.6	1.5	
				3	SS	X			3-3-3	17.6	1.5	
				4	SS	X			3-2-3	19.8	2.0	
Orangish brown, moist, stiff, SILTY CLAY (CL) with some to little sand and sandstone fragments	466.0	13.0	10	5	SS	X			4-5-6	21.7	2.0	
				6	SS	X		▽	3-3-4			
Brown, moist, loose, CLAYEY SAND (SC) with little gravel - wet below 14 ft.	462.0	17.0	15	7	SS	X		●	3-4-5			
Gray, slightly moist, very stiff, SILTY CLAY (CL) with trace sand, gravel, and sandstone fragments	459.0	20.0	20	8	SS	X			4-6-11	17.7	2.0	
Bottom of Test Boring at 20.0 ft.												

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 16.0 ft.
- ▽ At Completion 14.0 ft.
- ▽ After -- hours -- ft.
- Cave Depth 16.8 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-116
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/5/22 Hammer Wt. 140 lbs.
 Date Completed 12/5/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 479												
6 in. Asphalt	478.5	0.5										
Dark gray, moist, silty clay with trace sand, gravel, and cinders (FILL)	475.5	3.5		1	SS	X	■		4-3-4	24.8		Ground surface elevation estimated from plans provided by client. Sample No. 5: Atterberg Limits: LL=60 PL=17 PI=43
Brown and gray, moist, medium stiff, SILTY CLAY (CL)	473.5	5.5	5	2	SS	X	■		3-3-4	22.8	3.5	
Light gray, moist, medium stiff, SILTY CLAY (CL)	471.0	8.0		3	SS	X	■		3-4-4	24.3	1.5	
Gray, moist, medium stiff, SILTY CLAY (CL) with trace sand	468.5	10.5	10	4	SS	X	■		3-2-4	16.5	1.5	
Gray, moist, soft, CLAY (CH)	465.5	13.5		5	SS	X	■		1-2-2	29.0	0.75	
Gray, moist, medium stiff, SILTY CLAY (CL) with some sand	464.0	15.0	15	6	SS	X	■		2-3-3	17.0	0.5	
Bottom of Test Boring at 15.0 ft.												

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 13.1 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-117
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/5/22 Hammer Wt. 140 lbs.
 Date Completed 12/5/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 477												
15 in. Asphalt	476.6	0.4										
Gray, moist, silty clay with trace sand (FILL)	473.5	3.5		1	SS	X	█		7-5-3	19.4		Ground surface elevation estimated from plans provided by client. Sample No. 5: Atterberg Limits: LL=69 PL=19 PI=50
Brown, moist, medium stiff, SILTY CLAY (CL)	471.5	5.5	5	2	SS	X	█		4-4-5	24.3	2.25	
Gray, moist, medium stiff to soft, SILTY CLAY (CL)	466.5	10.5	10	3	SS	X	█		3-4-3	22.8	1.5	
	466.5	10.5	10	4	SS	X	█		3-2-3	23.5	1.5	
Brown, moist, soft, CLAY (CH)	463.5	13.5		5	SS	X	█		2-2-3	26.3	1.75	
Gray, moist, medium stiff, SILTY CLAY (CL) with some sand	462.0	15.0	15	6	SS	X	█		2-2-6	20.3	0.75	
Bottom of Test Boring at 15.0 ft.												

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 13.2 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-118
 PROJECT NAME Proposed WWTP and Gravity Sewer System JOB # 170GC01517
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/7/22 Hammer Wt. 140 lbs.
 Date Completed 12/7/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 492												
6 in. Asphalt over 4 in. Brick	491.2	0.8										
Gray and dark gray, moist, silty clay (FILL)	488.5	3.5		1	SS	X			3-3-4	21.7		Ground surface elevation estimated from plans provided by client. Sample No. 2: Atterberg Limits: LL=41 PL=19 PI=22
Brown and gray, moist, soft, SILTY CLAY (CL)	486.5	5.5	5	2	SS	X			3-2-3	27.1	1.75	
Brown, moist, soft to medium stiff, SILTY CLAY (CL)				3	SS	X			2-2-3	20.3	1.5	
				4	SS	X			2-3-3	27.2	1.75	
Brown, moist, medium stiff, SILTY CLAY (CL) with trace sand and gravel	481.5	10.5	10	5	SS	X			2-3-4	21.6	2.0	
				6	SS	X			3-4-5	22.2	1.5	
Bottom of Test Boring at 15.0 ft.												

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion 11.0 ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 13.0 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-119
 PROJECT NAME Proposed WWTP and Gravity Sewer System JOB # 170GC01517
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/7/22 Hammer Wt. 140 lbs.
 Date Completed 12/7/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 491												
4 in. Asphalt over 6 in. Brick	490.2	0.8										
Gray, moist, medium stiff, SILTY CLAY (CL)	488.0	3.0		1	SS				4-5-4	23.7		Ground surface elevation estimated from plans provided by client. Sample No. 2: Atterberg Limits: LL=48 PL=22 PI=26
Dark gray, moist, medium stiff, SILTY CLAY (CL)	485.5	5.5	5	2	SS				3-4-4	26.8	1.25	
Brown and gray, moist, soft, SILTY CLAY (CL)				3	SS				1-2-3	27.2	1.0	
				4	SS				1-2-2	23.2	1.0	
Brown, moist, medium stiff, SILTY CLAY (CL) with trace sand	480.0	11.0	10	5	SS				2-3-3	23.4	1.0	
Gray and brown, moist, soft, SILTY CLAY (CL) with trace sand	478.0	13.0		6	SS				3-2-3	24.9	1.0	
Gray, moist, soft, SILTY CLAY (CL) with little sand and sandstone fragments	475.5	15.5	15	7	SS				1-2-3	26.3	0.5	
Gray, moist, medium stiff, SILTY CLAY (CL) with trace sand and gravel	471.0	20.0	20	8	SS				5-4-5	18.0	1.5	
Bottom of Test Boring at 20.0 ft.												

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 16.0 ft.
- ▽ At Completion 15.0 ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 16.8 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-120
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/20/22 Hammer Wt. 140 lbs.
 Date Completed 12/20/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 507												
7 in. Asphalt	506.4	0.6										Ground surface elevation estimated from plans provided by client. Sample No. 2: Atterberg Limits: LL=34 PL=22 PI=12
Brown, moist, medium stiff, SILTY CLAY (CL)				1	SS				6-4-5	27.3	1.75	
				2	SS				3-4-3	27.0	0.5	
			5	3	SS				3-3-3	19.7	1.75	
Brown, moist, medium stiff, SILTY CLAY (CL) with trace sand and gravel	499.0	8.0		4	SS				4-3-4	25.0	1.75	
- trace sandstone fragments below 11 ft.			10	5	SS				5-6-4	22.4	1.5	
				6	SS				4-4-6	20.5	1.5	
	491.0	16.0	15	7	SS				13-16-50/0.3	10.2		
Tan, weathered, SANDY SHALE	489.0	18.0		8	SS				50/0.2	8.0		
Tan, slightly weathered, SHALE			20	9	SS				50/0.3			
				10	SS				50/0.3			
			25	11	SS				50/0.3			
				12	SS				50/0.2			
Bottom of Test Boring at 30.0 ft.	477.0	30.0										

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 26.5 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-121
 PROJECT NAME Proposed WWTP and Gravity Sewer System JOB # 170GC01517
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/22 Hammer Wt. 140 lbs.
 Date Completed 12/6/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 512												
6 in. Asphalt	511.5	0.5										Ground surface elevation estimated from plans provided by client. Sample No. 2: Atterberg Limits: LL=36 PL=20 PI=16 Sample No. 5: Atterberg Limits: LL=75 PL=22 PI=53
Dark gray and gray, moist, silty clay with trace sand and gravel (FILL)	508.5	3.5		1	SS				3-3-4	21.6		
Brown, moist, very soft, SILTY CLAY (CL)	506.0	6.0	5	2	SS				2-1-2	25.5	0.25	
Brown, moist, medium stiff to stiff, SILTY CLAY (CL) with trace sand	501.5	10.5	10	3	SS				3-3-3	18.6	1.25	
Brown and gray, moist, medium stiff, CLAY (CH)	499.0	13.0	15	4	SS				3-5-6	24.3	2.25	
Tan and gray, severely weathered, SHALE	496.5	15.5	20	5	SS				3-4-6	23.3	1.5	
Tan, severely weathered, SHALE	494.0	18.0	25	6	SS				3-6-8	16.7	4.0	
Gray, weathered, SHALE	489.0	23.0		7	SS				7-9-12	28.2	2.5	
Brown, slightly weathered, SHALE	485.9	26.1		8	SS				14-16-27	15.8		
				9	SS				24-50/0.3	11.8		
Bottom of Test Boring at 26.1 ft.				10	SS				50/0.1			
				11	SS				50/0.1			Auger refusal at 26.1 ft.

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 24.0 ft.
- ▽ At Completion 22.5 ft.
- ▽ After -- hours -- ft.
- Cave Depth 24.0 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-122
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/9/22 Hammer Wt. 140 lbs.
 Date Completed 12/9/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 509												
7 in. Asphalt	508.4	0.6										
Brown, moist, medium stiff, SILTY CLAY (CL)	506.0	3.0		1	SS				3-4-5	26.9	1.5	Ground surface elevation estimated from plans provided by client. Sample No. 2: Organic Content = 1.4% Marl Content = 15%
Gray, moist, soft, SILTY CLAY (CL) with little marl and trace organics	503.0	6.0	5	2	SS				3-2-3	26.3	1.0	
Brown, moist, medium stiff, SILTY CLAY (CL)				3	SS				3-3-3	20.8	1.25	
				4	SS				2-3-3	19.5	2.0	
Brown, slightly moist, stiff, SILTY CLAY (CL)	498.5	10.5	10	5	SS				5-6-7	23.4	2.75	
	496.0	13.0		6	SS				4-3-5	29.0	2.5	
Brown, slightly moist, medium stiff, SILTY CLAY (CL) with sandstone fragments	493.5	15.5	15	7	SS				7-7-9	20.4	3.5	
Gray, severely weathered, SHALE	490.2	18.8		8	SS				50/0.3	16.7		
Bottom of Test Boring at 18.8 ft.												

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 16.0 ft.
- ∇ At Completion 17.0 ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 18.0 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-123
 PROJECT NAME Proposed WWTP and Gravity Sewer System JOB # 170GC01517
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/22 Hammer Wt. 140 lbs.
 Date Completed 12/6/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 507												
6 in. Asphalt	506.5	0.5										
Brown, moist, medium stiff, SILTY CLAY (CL)				1	SS				3-4-5	27.0	2.0	Ground surface elevation estimated from plans provided by client.
				2	SS				2-3-3	23.3	1.5	
			5	3	SS				2-3-4	18.4	1.5	
	499.0	8.0		4	SS				4-5-7	25.0	1.75	
Brown, slightly moist, stiff to very stiff, SILTY CLAY (CL) with trace sand and sandstone fragments			10	5	SS				5-6-7	18.7	2.0	
				6	SS				4-6-6	18.6	1.25	
			15	7	SS				6-8-12	14.6	2.5	
				8	SS				6-7-9	16.3	2.75	
Bottom of Test Boring at 20.0 ft.	487.0	20.0	20									

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ▽ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 16.8 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-124
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/22 Hammer Wt. 140 lbs.
 Date Completed 12/6/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 518												
6 in. Asphalt	517.5	0.5										
Brown, moist, medium stiff to soft, SILTY CLAY (CL)			1	1	SS				3-4-4	25.7	2.0	Ground surface elevation estimated from plans provided by client.
			2	2	SS				3-4-4	23.7	1.5	
			3	3	SS				3-2-3	21.2	1.5	
			4	4	SS				2-3-4	19.1	2.25	
Brown, moist, medium stiff, SILTY CLAY (CL) with little sand and sandstone fragments	507.5	10.5	5	5	SS				4-4-6	19.3	1.75	
Gray and tan, severely weathered, SHALE	505.0	13.0	6	6	SS				5-6-8	18.3	3.5	
Bottom of Test Boring at 15.0 ft.	503.0	15.0	15									

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 13.1 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-125
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/7/22 Hammer Wt. 140 lbs.
 Date Completed 12/7/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 515												
6 in. Asphalt	514.5	0.5										Ground surface elevation estimated from plans provided by client. Sample No. 1: Atterberg Limits: LL=40 PL=21 PI=19
Gray, moist, medium stiff, SILTY CLAY (CL)	512.0	3.0		1	SS				5-5-5	23.1	1.0	
Light brown, moist, soft, SILTY CLAY (CL)				2	SS				3-2-3	25.0		
	509.0	6.0	5	3	SS				3-4-5	20.0	2.5	
Brown, moist to very moist, stiff to very soft, SILTY CLAY (CL) with trace sand and sandstone fragments			10	4	SS				5-7-8	30.6	2.0	
				5	SS				5-5-6	45.0	2.0	
				6	SS				1-2-1	56.9		
Gray and tan, severely weathered, SHALE	499.0	16.0	15	7	SS				14-15-19	17.2	3.5	
Gray, weathered, SHALE	497.0	18.0	20	8	SS				12-15-20	13.6		
				9	SS				17-21-23	14.3		
				10	SS				15-27-50/0.3	11.9		
Gray, slightly weathered, SHALE	489.5	25.5	25	11	SS				50/0.3	5.7		
			30	12	SS				50/0.1			
				13	SS				50/0.3			
			35	14	SS				50/0.3	5.2		
				15	SS				50/0.3	7.2		
Bottom of Test Boring at 38.6 ft.	476.4	38.6		16	SS				50/0.1			Auger refusal at 38.6 ft.

Sample Type
 SS - Driven Split Spoon
 ST - Pressed Shelby Tube
 CA - Continuous Flight Auger
 RC - Rock Core
 CU - Cuttings
 CT - Continuous Tube

Depth to Groundwater
 ● Noted on Drilling Tools None ft.
 ∇ At Completion None ft.
 ▼ After -- hours -- ft.
 ☒ Cave Depth 38.0 ft.

Boring Method
 HSA - Hollow Stem Augers
 CFA - Continuous Flight Augers
 CA - Casing Advancer
 MD - Mud Drilling
 HA - Hand Auger



CLIENT Town of Wheatland BORING # B-126
 PROJECT NAME Proposed WWTP and Gravity Sewer System JOB # 170GC01517
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/1/22 Hammer Wt. 140 lbs.
 Date Completed 12/1/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 501												
7 in. Asphalt	500.4	0.6										Ground surface elevation estimated from plans provided by client. Sample No. 2: Atterberg Limits: LL=34 PL=23 PI=11 Organic Content = 2.8%
Brown, moist, medium stiff, SILTY CLAY (CL)	498.0	3.0		1	SS				3-3-4	27.5	1.5	
Brown and dark gray, moist, medium stiff, SILTY CLAY (CL) with trace organics	495.0	6.0	5	2	SS				2-3-3	26.2	1.5	
Brown, moist, medium stiff to stiff, SILTY CLAY (CL) with trace sand	490.5	10.5	10	3	SS				2-3-4	20.1	1.5	
Brown and gray, moist, stiff, SILTY CLAY (CL) with trace sand and sandstone fragments	488.0	13.0	15	4	SS				5-6-6	20.7	1.75	
Brown, reddish brown, and gray, moist, stiff, SILTY CLAY (CL) with little sand, trace gravel, and sandstone fragments	485.5	15.5	20	5	SS				4-5-6	19.7	2.25	
Olive brown, severely weathered, SHALE	483.0	18.0	25	6	SS				5-6-9	21.8		
Brown, severely weathered, SHALE	480.5	20.5	30	7	SS				6-8-11	16.4		
Tan, weathered, SHALE	475.5	25.5		8	SS				5-7-7	35.9		
				9	SS				10-11-17	18.5		
				10	SS				14-21-35	15.1		
Gray, slightly weathered, SHALE				11	SS				50/0.1			
				12	SS				50/0.2			
Bottom of Test Boring at 32.0 ft.	469.0	32.0		13	SS				50/0.1		Auger refusal at 32.0 ft.	

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 29.2 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-127
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 11/30/22 Hammer Wt. 140 lbs.
 Date Completed 11/30/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 490												
5 in. Asphalt over 12 in. Cinders	488.6	1.4										Ground surface elevation estimated from plans provided by client. Sample No. 2: Atterberg Limits: LL=58 PL=23 PI=35 Sample No. 3: Atterberg Limits: LL=37 PL=24 PI=13
Dark gray and black, moist, silty clay with little sand, trace gravel, cinders, and brick fragments (FILL)	486.5	3.5		1	SS				5-4-4	30.4		
Brown, moist, medium stiff, CLAY (CH)	484.5	5.5	5	2	SS				2-3-3	29.7	1.5	
Brown, moist, soft, SILTY CLAY (CL)				3	SS				2-2-2	31.0	0.75	
Brown, moist, medium stiff to soft, SILTY CLAY (CL)	481.5	8.5	10	4	SS				2-3-3	22.4	1.5	
				5	SS				2-2-3	20.5	2.0	
Brown and gray, moist, soft, CLAY (CH) with trace sand	477.0	13.0	15	6	SS				3-2-3	31.3	1.5	
Brown and gray, moist, very stiff, SILTY CLAY (CL) with trace sand and sandstone fragments	474.0	16.0		7	SS				5-7-10	17.3	3.0	
Brown and light gray, weathered, SHALE	472.0	18.0		8	SS				11-50/0.3	12.0		
Bottom of Test Boring at 19.3 ft.												

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 18.2 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-128
 PROJECT NAME Proposed WWTP and Gravity Sewer System JOB # 170GC01517
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 11/30/22 Hammer Wt. 140 lbs.
 Date Completed 12/2/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 489												
8.5 in. Asphalt over 5 in. Cinders	487.8	1.2										Ground surface elevation estimated from plans provided by client.
Dark gray and brown, moist, silty clay with trace sand (FILL)	485.5	3.5		1	SS				3-2-2	26.0		
Brown, moist, soft to medium stiff, SILTY CLAY (CL)	478.5	5		2	SS				4-3-5	23.3	1.5	
				3	SS				3-2-3	18.9	1.5	
				4	SS				3-4-3	19.2	1.5	
Brown and gray, moist, medium stiff, SILTY CLAY (CL) with trace sand	478.5	10.5		5	SS				3-2-4	22.7	1.75	
				6	SS				4-4-5	22.0	1.0	
Brown, dark brown, and gray, severely weathered, SANDSTONE	476.0	13.0										
Brown, dark brown, and gray, severely weathered, SANDSTONE	473.5	15.5		7	SS				5-7-11	18.5	2.0	
				8	SS				6-10-50/0.3	16.3	3.0	
Brown, moist, very stiff, SILTY CLAY (CL) with trace sand and gravel - trace weathered sandstone fragments below 18 ft.	468.5	20.5										
Tan, slightly weathered, SHALE	468.5	20.5		9	SS				50/0.1			
				10	SS				50/0.1	5.0		
				11	SS				50/0.2			
Gray, weathered, SHALE	458.5	30.5		12	SS				50/0.1			
				13	SS				50/0.1	8.9		
Bottom of Test Boring at 33.6 ft.	455.4	33.6		14	SS				50/0.1			

Sample Type

Depth to Groundwater

Boring Method

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

- Noted on Drilling Tools 28.0 ft.
- ∇ At Completion 23.0 ft.
- ∇ After -- hours -- ft.
- ⊠ Cave Depth 29.0 ft.

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-129
 PROJECT NAME Proposed WWTP and Gravity Sewer System JOB # 170GC01517
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/1/22 Hammer Wt. 140 lbs.
 Date Completed 12/1/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 486												
9 in. Asphalt	485.2	0.8										Ground surface elevation estimated from plans provided by client. Sample No. 1: Atterberg Limits: LL=37 PL=22 PI=15 Organic Content = 2.4% Sample No. 3: Atterberg Limits: LL=36 PL=19 PI=17
Black and dark gray, moist, medium stiff, SILTY CLAY (CL) with trace organics	482.5	3.5		1	SS	X			5-3-3	29.9	1.0	
Gray, moist, medium stiff, SILTY CLAY (CL)	480.5	5.5	5	2	SS	X			3-3-5	25.1	1.5	
Brown, gray, and dark gray, moist, soft, SILTY CLAY (CL)	477.5	8.5	10	3	SS	X			2-2-3	34.6	0.75	
Brown and gray, moist, medium stiff to soft, SILTY CLAY (CL)	473.0	13.0	15	4	SS	X			3-3-3	21.1	1.0	
Brown, moist, medium stiff, SILTY CLAY (CL) with trace sand	468.0	18.0	20	5	SS	X			3-2-3	23.1	1.75	
Gray and brown, moist, soft, SILTY CLAY (CL)	465.5	20.5	25	6	SS	X			3-2-4	23.9	1.0	
Dark gray and brown, slightly moist, very stiff, SILTY CLAY (CL) with little sand, trace gravel, and sandstone fragments	461.0	25.0		7	SS	X			5-4-5	25.1	1.5	
				8	SS	X			3-2-2	25.5		
				9	SS	X			5-7-9	20.5	1.0	
				10	SS	X			8-10-13	12.8	4.0	
Bottom of Test Boring at 25.0 ft.												

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 12.0 ft.
- ∇ At Completion 13.0 ft.
- ∇ After -- hours -- ft.
- ⊠ Cave Depth 21.6 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-130
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/1/22 Hammer Wt. 140 lbs.
 Date Completed 12/1/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 489												
7 in. Asphalt	488.4	0.6										
Black and dark gray, slightly moist, sandy silty clay with trace gravel (FILL)	485.5	3.5		1	SS	X			4-2-3	15.4		Ground surface elevation estimated from plans provided by client. Sample No. 3: Atterberg Limits: LL=30 PL=20 PI=10
Brown, moist, medium stiff to very soft, SILTY CLAY (CL)	478.5	10.5	5	2	SS	X			3-3-3	25.3	1.25	
				3	SS	X			1-1-2	21.6	1.0	
				4	SS	X			2-2-3	20.3	1.0	
Brown and gray, moist, medium stiff, SILTY CLAY (CL)	474.0	15.0	15	5	SS	X			3-3-4	23.6	1.25	
				6	SS	X			2-4-5	21.5	2.25	
Bottom of Test Boring at 15.0 ft.												

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 12.1 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland
 PROJECT NAME Proposed WWTP and Gravity Sewer System
 PROJECT LOCATION Wheatland, Indiana

BORING # B-131
 JOB # 170GC01517

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/1/22 Hammer Wt. 140 lbs.
 Date Completed 12/1/22 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector D. McIlwaine Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 486												
7 in. Asphalt	485.4	0.6										Ground surface elevation estimated from plans provided by client.
Brown and dark brown, moist, silty clay with trace sand and gravel (FILL)	482.5	3.5		1	SS				3-3-5	24.0		
Brown, moist, medium stiff, SILTY CLAY (CL)			5	2	SS				4-5-5	24.7	2.0	
				3	SS				4-4-6	19.5	2.5	
Brown and dark brown, moist, stiff, SILTY CLAY (CL) with trace sandstone fragments	478.0	8.0		4	SS				4-5-6	21.0		
Brown and gray, moist, stiff, SILTY CLAY (CL) with trace sandstone fragments	475.5	10.5	10	5	SS				5-5-8	20.9	2.0	
				6	SS				5-7-8	17.5	2.5	
Brown, moist, stiff, SILTY CLAY (CL)	470.5	15.5	15	7	SS				5-6-9	26.1	2.5	
	468.0	18.0		8	SS				1-2-2	23.0		
Brown and dark brown, moist, soft, SANDY SILTY CLAY (CL) with sandstone fragments	465.5	20.5	20	9	SS				1-1-3			
Tan, wet, very loose, SAND (SP-SM) with trace silt and gravel	463.0	23.0		10	SS				2-2-2			
Brown and dark brown, wet, very loose, SAND (SP-SM) with trace silt and gravel	460.0	26.0	25	11	SS				8-16-19	17.4		
Gray, slightly moist, hard, SILTY CLAY (CL) with trace sand and gravel				12	SS				10-15-16	16.2	2.5	
	453.0	33.0		13	SS				6-10-13	17.4	3.0	
Gray, slightly moist, hard, SILTY CLAY (CL) with trace sand	451.0	35.0	35	14	SS				9-14-19	14.0	3.0	
Bottom of Test Boring at 35.0 ft.												

Sample Type
 SS - Driven Split Spoon
 ST - Pressed Shelby Tube
 CA - Continuous Flight Auger
 RC - Rock Core
 CU - Cuttings
 CT - Continuous Tube

Depth to Groundwater
 ● Noted on Drilling Tools 20.0 ft.
 ∇ At Completion 26.0 ft.
 ∇ After -- hours -- ft.
 ☒ Cave Depth 28.2 ft.

Boring Method
 HSA - Hollow Stem Augers
 CFA - Continuous Flight Augers
 CA - Casing Advancer
 MD - Mud Drilling
 HA - Hand Auger



CLIENT Town of Wheatland BORING # B-1
 PROJECT NAME Proposed Replacement Water Mains JOB # 170GC01308
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/21 Hammer Wt. 140 lbs.
 Date Completed 12/6/21 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector T. Struewing Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-tsf	Remarks
SURFACE ELEVATION 495												
9 in. Asphalt	494.2	0.8										Ground surface elevation estimated based on Google Earth.
Brown, moist, soft, SILTY CLAY (CL)				1	SS				3-2-3	26.1	2.0	
	491.5	3.5										
Brown, very moist, medium stiff, CLAYEY SILT (ML)				2	SS				3-3-3	23.2	0.75	
	489.5	5.5	5									
Brown, dark brown, and gray, moist, medium stiff, SILTY CLAY (CL) with trace sand				3	SS				3-3-3	18.8	1.5	
				4	SS				2-3-3	19.7	1.5	
			10									
				5	SS				4-4-5	28.5	2.5	
				6	SS				3-3-6	23.1	2.5	
Bottom of Test Boring at 15.0 ft.	480.0	15.0	15									

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 12.2 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-2
 PROJECT NAME Proposed Replacement Water Mains JOB # 170GC01308
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/21 Hammer Wt. 140 lbs.
 Date Completed 12/6/21 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector T. Struewing Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 501												
4 in. Asphalt over 4 in. Cinders	500.3	0.7										Ground surface elevation estimated based on Google Earth.
Brown and gray, moist to very moist, medium stiff, SILTY CLAY (CL-ML)				1	SS				3-3-4	27.6		
				2	SS				3-3-3	25.4	0.5	Sample No. 2 driven on a rock.
	495.5	5.5	5									
Brown, very moist, medium stiff, CLAYEY SILT (ML)				3	SS				3-2-4	19.9	2.5	
				4	SS				2-3-3	19.1	1.5	
	490.5	10.5	10									
Brown and gray, very moist, soft, SILTY CLAY (CL)				5	SS				2-2-3	27.9	0.5	
	487.5	13.5		6	SS				3-5-6		4.0	
Brown, black, and gray, moist, stiff, SILTY CLAY (CL)												
	486.0	15.0	15									
Bottom of Test Boring at 15.0 ft.												

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ▽ At Completion 12.4 ft.
- ▽ After -- hours -- ft.
- ⊠ Cave Depth 13.2 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-3
 PROJECT NAME Proposed Replacement Water Mains JOB # 170GC01308
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/21 Hammer Wt. 140 lbs.
 Date Completed 12/6/21 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector T. Struewing Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 500												
10 in. Asphalt	499.2	0.8										
Brown and gray, moist, medium stiff to soft, SILTY CLAY (CL)				1	SS				5-3-3	27.5	1.5	Ground surface elevation estimated based on Google Earth.
				2	SS				3-1-3			
			5									
	494.0	6.0		3	SS				2-2-2	23.9	0.75	
Brown and gray, very moist, soft, CLAYEY SILT (ML)												
	491.5	8.5		4	SS				2-3-4	21.0	1.25	
Brown and gray, moist, medium stiff, SILTY CLAY (CL-ML)												
	490.0	10.0	10									Bottom of Test Boring at 10.0 ft.

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion 7.8 ft.
- ∇ After -- hours -- ft.
- ⊕ Cave Depth 8.2 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-4
 PROJECT NAME Proposed Replacement Water Mains JOB # 170GC01308
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/21 Hammer Wt. 140 lbs.
 Date Completed 12/6/21 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector T. Struewing Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 490												
7 in. Asphalt over 4 in. Cinders	489.1	0.9										Ground surface elevation estimated based on Google Earth.
Gray, moist, medium stiff, SILTY CLAY (CL)				1	SS				1-3-4	26.5		
	487.0	3.0										
Brown and gray, moist, medium stiff, SILTY CLAY (CL-ML)				2	SS				3-4-3	27.0	0.5	
	484.5	5.5	5									
Brown and gray, very moist, soft, CLAYEY SILT (ML)				3	SS				2-2-2	22.4	0.25	
				4	SS				2-2-3	18.3	0.5	
			10									
Reddish brown and dark brown, moist, medium stiff to stiff, SILTY CLAY (CL) with some sand	479.0	11.0		5	SS				2-3-4			
				6	SS				4-6-7			
Bottom of Test Boring at 15.0 ft.	475.0	15.0	15									

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 8.5 ft.
- ∇ At Completion 12.0 ft.
- ∇ After -- hours -- ft.
- ⊠ Cave Depth 13.0 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-5
 PROJECT NAME Proposed Replacement Water Mains JOB # 170GC01308
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/21 Hammer Wt. 140 lbs.
 Date Completed 12/6/21 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector T. Struewing Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 521												
12 in. Asphalt	520.0	1.0										Ground surface elevation estimated based on Google Earth.
Brown and reddish brown, moist, medium stiff, SILTY CLAY (CL-ML)				1	SS				4-4-5		1.5	
				2	SS				3-3-4		1.0	
	515.5	5.5	5									
Brown, moist, medium stiff, SILTY CLAY (CL-ML)				3	SS				3-4-6			
	512.5	8.5		4	SS				4-4-6		2.5	
Brown and gray, moist, medium stiff, SILTY CLAY (CL)			10									
	510.0	11.0		5	SS				4-6-6		3.5	
Brown and gray, moist, stiff, SILTY CLAY (CL)												
	507.5	13.5		6	SS				4-3-3			
Brown, moist, medium stiff, SILTY CLAY (CL) with little sand												
	506.0	15.0	15									
Bottom of Test Boring at 15.0 ft.												

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 13.2 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-6
 PROJECT NAME Proposed Replacement Water Mains JOB # 170GC01308
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/21 Hammer Wt. 140 lbs.
 Date Completed 12/6/21 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector T. Struewing Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 494												
9 in. Asphalt over 14 in. Cinders				1	SS				9-9-7			Ground surface elevation estimated based on Google Earth.
Black and dark brown, moist, silty clay and cinders (FILL)	492.0	2.0										
Brown, very moist, soft, SILTY CLAY (CL-ML)	490.5	3.5		2	SS				3-2-3		0.25	
Brown, very moist, soft, CLAYEY SILT (ML)	488.5	5.5	5									
				3	SS				2-2-2		0.5	
	485.5	8.5		4	SS				2-3-4		1.0	
Brown and gray, moist, medium stiff to stiff, SILTY CLAY (CL)			10									
				5	SS				3-2-4		1.75	
				6	SS				4-5-6			
Bottom of Test Boring at 15.0 ft.	479.0	15.0	15									

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 13.4 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-7
 PROJECT NAME Proposed Replacement Water Mains JOB # 170GC01308
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/21 Hammer Wt. 140 lbs.
 Date Completed 12/6/21 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector T. Struewing Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 508												
5 in. Asphalt	507.6	0.4										Ground surface elevation estimated based on Google Earth.
Reddish brown and brown, moist, medium stiff, SILTY CLAY (CL) with little sand				1	SS				4-3-4	30.6		
	505.0	3.0										
Brown, very moist, medium stiff, CLAYEY SILT (ML)				2	SS				3-3-4	27.1	0.25	
	502.0	6.0	5									
Brown, moist, soft, SILTY CLAY (CL-ML)				3	SS				2-2-2	24.0	1.0	
	499.5	8.5										
Brown, moist, medium stiff, SILTY CLAY (CL)				4	SS				3-3-3		2.5	
	497.0	11.0	10									
Brown, black, and gray, moist, stiff to very stiff, SILTY CLAY (CL) with trace sand				5	SS				3-5-7		3.0	
	493.0	15.0	15									
Bottom of Test Boring at 15.0 ft.				6	SS				7-10-11		4.5+	

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 13.0 ft.
- ▽ At Completion 12.0 ft.
- ▽ After -- hours -- ft.
- ⊠ Cave Depth 13.4 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-8
 PROJECT NAME Proposed Replacement Water Mains JOB # 170GC01308
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/21 Hammer Wt. 140 lbs.
 Date Completed 12/6/21 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector T. Struewing Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 485												
12 in. Asphalt	484.0	1.0										Ground surface elevation estimated based on Google Earth.
Dark gray, moist, medium stiff, SILTY CLAY (CL-ML) with trace organics	482.0	3.0		1	SS				7-7-3			
Brown and gray, moist, very soft to soft, SILTY CLAY (CL-ML)				2	SS				3-2-1	26.5	0.5	
			5	3	SS				2-2-3	21.2	1.0	
Brown and gray, moist, medium stiff, SILTY CLAY (CL) with little sand	476.5	8.5		4	SS				3-4-4	16.2	1.5	
Brown, moist to very moist, medium stiff to stiff, SILTY CLAY (CL) with little to some sand	474.0	11.0	10	5	SS				3-3-5	22.6	2.75	
				6	SS				5-6-6			
Bottom of Test Boring at 15.0 ft.	470.0	15.0	15									

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 13.2 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-9
 PROJECT NAME Proposed Replacement Water Mains JOB # 170GC01308
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/21 Hammer Wt. 140 lbs.
 Date Completed 12/6/21 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector T. Struewing Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 484												
4 in. Asphalt over 6 in. Cinders	483.2	0.8										Ground surface elevation estimated based on Google Earth.
Dark gray, moist, soft, SILTY CLAY (CL-ML) with trace organics	481.0	3.0		1	SS				3-2-3			
Brown and gray, moist, medium stiff, SILTY CLAY (CL)				2	SS				3-4-4			
Brown and gray, moist, soft to very soft, SILTY CLAY (CL-ML)	478.5	5.5	5	3	SS				3-2-3		0.75	
				4	SS			▽	2-1-2		0.5	
			10	5	SS				1-2-2		0.25	
Reddish brown and black, moist, medium stiff, SILTY CLAY (CL)	470.5	13.5		6	SS				2-3-4		1.0	
Bottom of Test Boring at 15.0 ft.	469.0	15.0	15									

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools 9.0 ft.
- ▽ At Completion 8.0 ft.
- ▽ After -- hours -- ft.
- ⊠ Cave Depth 12.0 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-10
 PROJECT NAME Proposed Replacement Water Mains JOB # 170GC01308
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/21 Hammer Wt. 140 lbs.
 Date Completed 12/6/21 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector T. Struewing Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 486												
6 in. Asphalt	485.5	0.5										Ground surface elevation estimated based on Google Earth.
Brown and gray, moist, medium stiff, SILTY CLAY (CL-ML)				1	SS				5-3-3	27.0	1.5	
				2	SS				4-3-4	25.8	1.5	
			5									
Brown, moist, medium stiff, CLAYEY SILT (ML)	480.0	6.0		3	SS				3-3-4	27.2	0.5	
				4	SS				4-5-4	18.8		
Brown, moist, medium stiff, SILTY CLAY (CL-ML)	477.5	8.5										
			10									
Brown, black, and gray, moist, stiff, SILTY CLAY (CL)	475.0	11.0		5	SS				5-5-6	21.5	2.5	
				6	SS				4-4-3			
Brown and gray, moist, medium stiff, SILTY CLAY (CL) with little to some sand	472.5	13.5										
Bottom of Test Boring at 15.0 ft.	471.0	15.0	15									

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 12.8 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-11
 PROJECT NAME Proposed Replacement Water Mains JOB # 170GC01308
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/21 Hammer Wt. 140 lbs.
 Date Completed 12/6/21 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector T. Struewing Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 483												
9 in. Asphalt	482.2	0.8										Ground surface elevation estimated based on Google Earth.
Gray, moist, soft, SILTY CLAY (CL-ML)				1	SS				2-3-2	26.5		
	479.5	3.5										
Brown and gray, moist, medium stiff to soft, SILTY CLAY (CL)			5	2	SS				3-3-3	25.7	1.75	
	474.5	8.5										
Brown, very moist, medium stiff, SILTY CLAY (CL) with trace to little sand				3	SS				2-2-2	25.6	0.75	
	473.0	10.0	10									
Bottom of Test Boring at 10.0 ft.				4	SS				4-4-5		0.25	

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 7.8 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger



CLIENT Town of Wheatland BORING # B-12
 PROJECT NAME Proposed Replacement Water Mains JOB # 170GC01308
 PROJECT LOCATION Wheatland, Indiana

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/6/21 Hammer Wt. 140 lbs.
 Date Completed 12/6/21 Hammer Drop 30 in.
 Drill Foreman G. Lauber Spoon Sampler OD 2.0 in.
 Inspector T. Struewing Rock Core Dia. -- in.
 Boring Method HSA Shelby Tube OD -- in.

SOIL CLASSIFICATION	Stratum Elevation	Stratum Depth, ft	Depth Scale, ft	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Groundwater	Standard Penetration Test, Blows per 6 in. Increments	Moisture Content, %	Pocket Penetrometer PP-1sf	Remarks
SURFACE ELEVATION 490												
7 in. Asphalt over 4 in. Cinders	489.1	0.9										
Brown, moist, medium stiff, SILTY CLAY (CL) with trace sand	487.0	3.0		1	SS				3-4-4		2.0	Ground surface elevation estimated based on Google Earth.
Brown and gray, moist, medium stiff, SILTY CLAY (CL-ML)				2	SS				3-3-3		0.75	
			5									
				3	SS				3-3-4		2.0	
				4	SS				3-3-3		1.75	
			10									
Brown and gray, moist, medium stiff, SILTY CLAY (CL)	479.0	11.0		5	SS				4-3-4			
Brown, reddish brown, and gray, weathered, SHALE	476.5	13.5		6	SS				15-36-50			
Bottom of Test Boring at 15.0 ft.	475.0	15.0	15									

Sample Type

- SS - Driven Split Spoon
- ST - Pressed Shelby Tube
- CA - Continuous Flight Auger
- RC - Rock Core
- CU - Cuttings
- CT - Continuous Tube

Depth to Groundwater

- Noted on Drilling Tools None ft.
- ∇ At Completion None ft.
- ▼ After -- hours -- ft.
- ⊠ Cave Depth 13.2 ft.

Boring Method

- HSA - Hollow Stem Augers
- CFA - Continuous Flight Augers
- CA - Casing Advancer
- MD - Mud Drilling
- HA - Hand Auger

FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

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

<u>Density</u>		<u>SPT*</u>	<u>Particle Size Identification</u>	
Very Loose	-	5 blows/ft or less	Boulders	- 8 inch or greater
Loose	-	6 to 10 blows/ft	Cobbles	- 3 to 8 inch
Medium Dense	-	11 to 30 blows/ft	Gravel	- Coarse - 1 to 3 inch
Dense	-	31 to 50 blows/ft		Medium - ½ to 1 inch
Very Dense	-	51 blows/ft or more		Fine - ¼ to ½ inch
			Sand	- Coarse 2.00mm to ¼ inch (dia. of pencil lead)
				Medium 0.42 to 2.00mm (dia. of broom straw)
				Fine 0.074 to 0.42mm (dia. of human hair)
			Silt	0.074 to 0.002mm (cannot see particles)

<u>Relative Proportions</u>	
Descriptive Term	Percent
Trace	1 - 10
Little	11 - 20
Some	21 - 35
And	36 - 50

COHESIVE SOILS (Clay, Silt and Combinations)

<u>Consistency</u>		<u>SPT*</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 - 4
Medium Stiff	-	6 to 10 blows/ft	Slight	5 - 7
Stiff	-	11 to 15 blows/ft	Medium	8 - 22
Very Stiff	-	16 to 30 blows/ft	High to Very High	over 22
Hard	-	31 blows/ft or more		

Classification on the logs are made by visual inspection of samples.

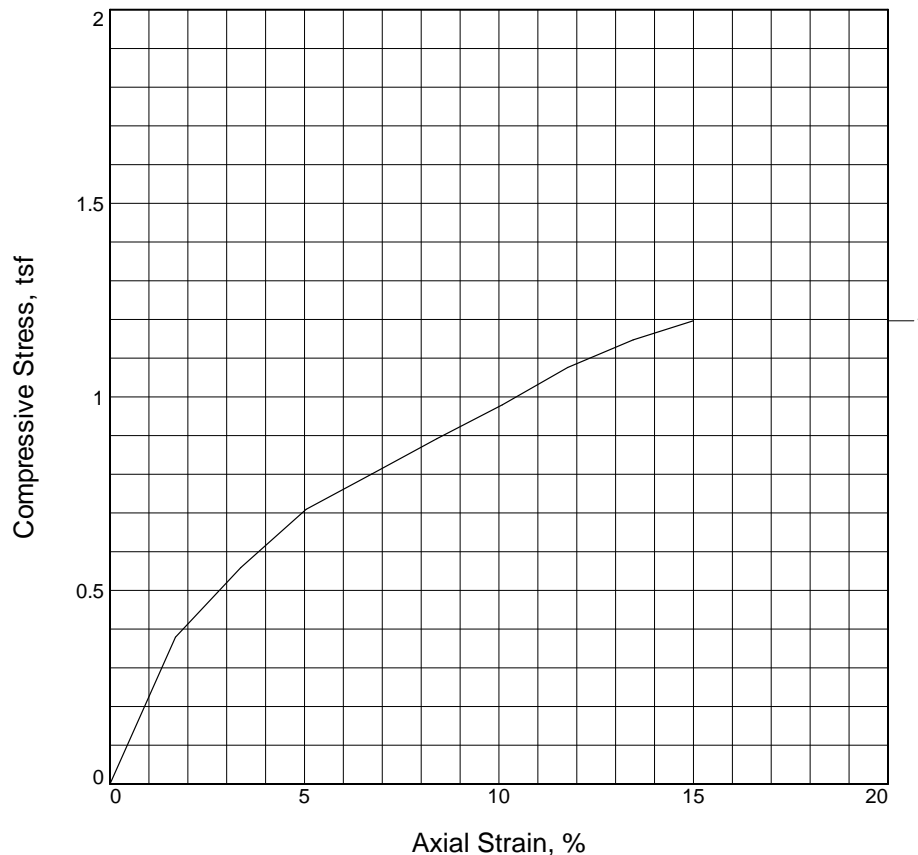
*Based upon results of Standard Penetration Test as described below.

Standard Penetration Test — Driving a 2.0" O.D. 1-3/8" I.D. sampler a distance of 12 inches into undisturbed soil with a 140 pound hammer free falling a distance of 30 inches. It is customary for ATC to drive the split-barrel sampler 6 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the split-barrel sampler and making the test are recorded for each 6 inches of penetration of the sampler (Example – 6-8-9). The standard penetration test result can be obtained by adding the last two figures (i.e., 8 + 9 = 17 blows/ft). The Standard Penetration Test is performed according to ASTM D-1586-18.

Strata Changes — In the column "Soil Classifications" on the Test Boring Logs the horizontal lines represent strata changes. A solid line (_____) represents an actually observed change. A dashed line (_____) represents an estimated change.

Ground Water observations were made at the times and conditions indicated on the Test Boring Logs. Porosity of soil strata, weather conditions, site topography, etc., may cause changes in the water levels indicated on the logs.

UNCONFINED COMPRESSION TEST



Sample No.	1		
Unconfined strength, tsf	1.197		
Undrained shear strength, tsf	0.598		
Failure strain, %	15.0		
Strain rate, %/min.	2.00		
Water content, %	22.1		
Wet density, pcf	128.8		
Dry density, pcf	105.5		
Saturation, %	99.8		
Void ratio	0.5978		
Specimen diameter, in.	1.38		
Specimen height, in.	2.97		
Height/diameter ratio	2.16		

Description:

LL = PL = PI = Assumed GS= 2.7 Type: Split spoon

Project No.: 170GC01517

Date Sampled:

Remarks:

Client: Town of Wheatland

Project: Sewer Improvements, Wheatland

Source of Sample: 14675 **Depth:** 6-7.5'

Sample Number: B-101; S-3

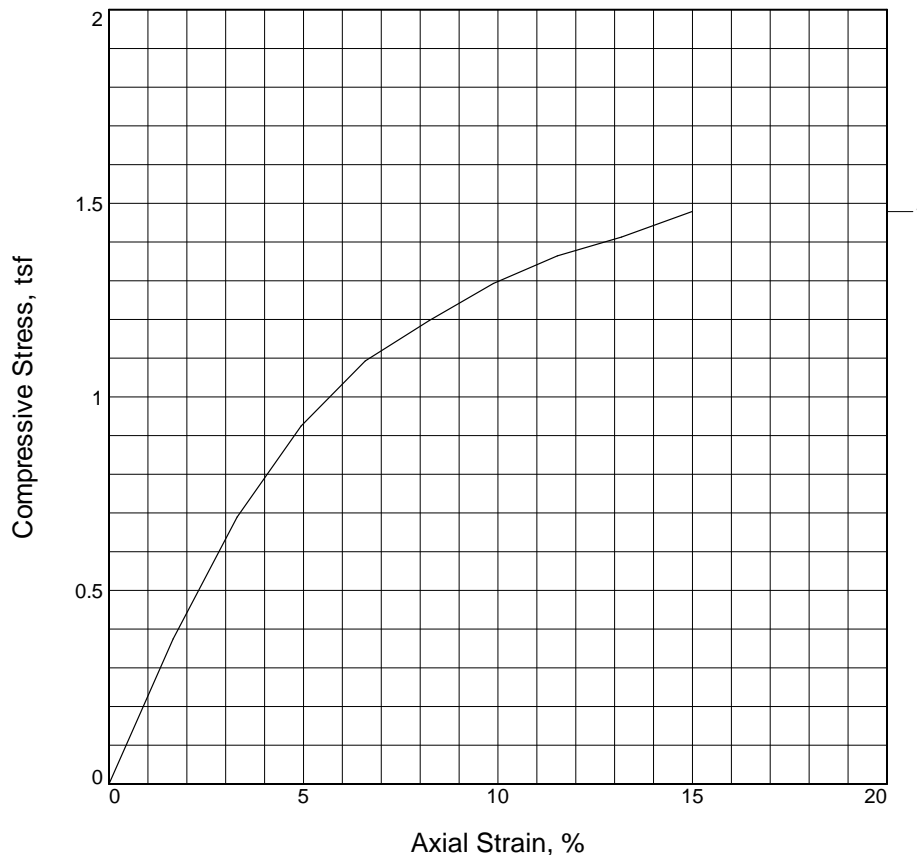
UNCONFINED COMPRESSION TEST

Atlas

Indianapolis, Indiana

Figure QU14675C

UNCONFINED COMPRESSION TEST



Sample No.	1		
Unconfined strength, tsf	1.479		
Undrained shear strength, tsf	0.739		
Failure strain, %	15.0		
Strain rate, %/min.	2.00		
Water content, %	17.9		
Wet density, pcf	133.9		
Dry density, pcf	113.6		
Saturation, %	99.9		
Void ratio	0.4838		
Specimen diameter, in.	1.43		
Specimen height, in.	3.04		
Height/diameter ratio	2.12		

Description:

LL = PL = PI = Assumed GS= 2.7 Type: Split spoon

Project No.: 170GC01517

Date Sampled:

Remarks:

Client: Town of Wheatland

Project: Sewer Improvements, Wheatland

Source of Sample: 14675 **Depth:** 38.5-40'

Sample Number: B-101; S-16

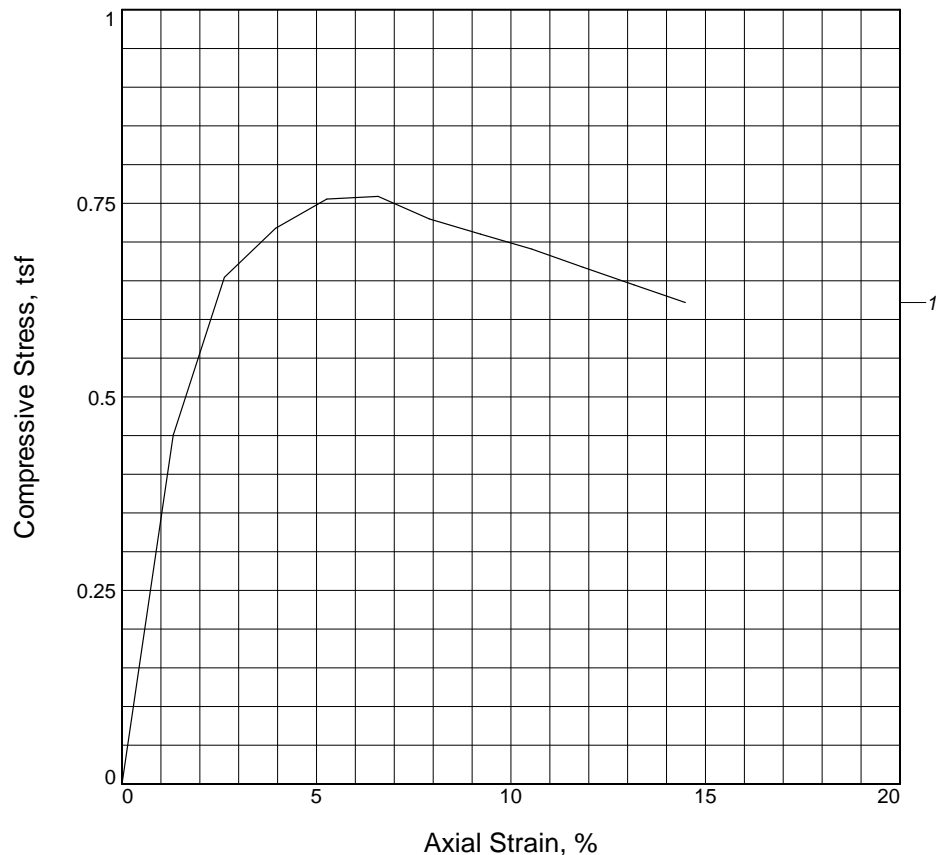
UNCONFINED COMPRESSION TEST

Atlas

Indianapolis, Indiana

Figure QU14675K

UNCONFINED COMPRESSION TEST



Sample No.	1		
Unconfined strength, tsf	0.759		
Undrained shear strength, tsf	0.379		
Failure strain, %	6.6		
Strain rate, %/min.	2.00		
Water content, %	23.1		
Wet density, pcf	124.3		
Dry density, pcf	100.9		
Saturation, %	93.1		
Void ratio	0.6697		
Specimen diameter, in.	1.35		
Specimen height, in.	3.04		
Height/diameter ratio	2.25		

Description:

LL = PL = PI = Assumed GS= 2.7 Type: Split spoon

Project No.: 170GC01517

Date Sampled:

Remarks:

Client: Town of Wheatland

Project: Sewer Improvements, Wheatland

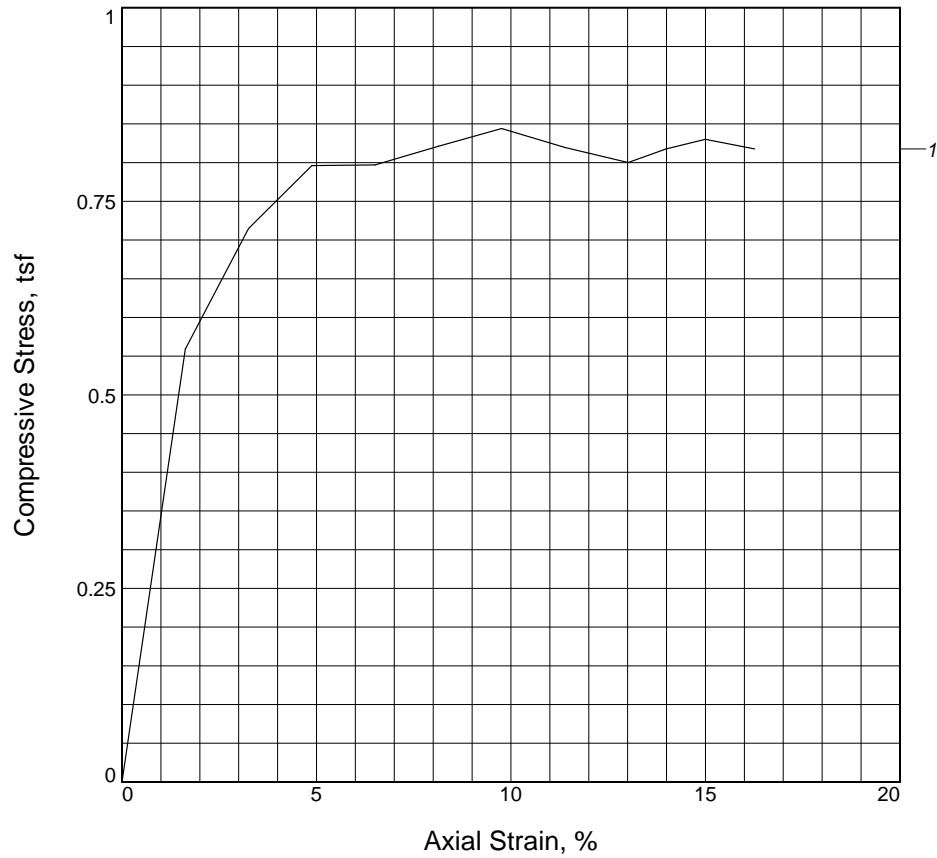
Source of Sample: 14646 **Depth:** 6-7.5'

Sample Number: B-103; S-3

UNCONFINED COMPRESSION TEST
Atlas
Indianapolis, Indiana

Figure QU14646I

UNCONFINED COMPRESSION TEST



Sample No.	1		
Unconfined strength, tsf	0.844		
Undrained shear strength, tsf	0.422		
Failure strain, %	9.8		
Strain rate, %/min.	2.00		
Water content, %	31.3		
Wet density, pcf	119.9		
Dry density, pcf	91.3		
Saturation, %	100.0		
Void ratio	0.8461		
Specimen diameter, in.	1.33		
Specimen height, in.	3.07		
Height/diameter ratio	2.31		

Description:

LL = PL = PI = Assumed GS= 2.7 Type: Split spoon

Project No.: 170GC01517

Date Sampled:

Remarks:

Client: Town of Wheatland

Project: Sewer Improvements, Wheatland

Source of Sample: 14646 **Depth:** 11-12.5'

Sample Number: B-103; S-5

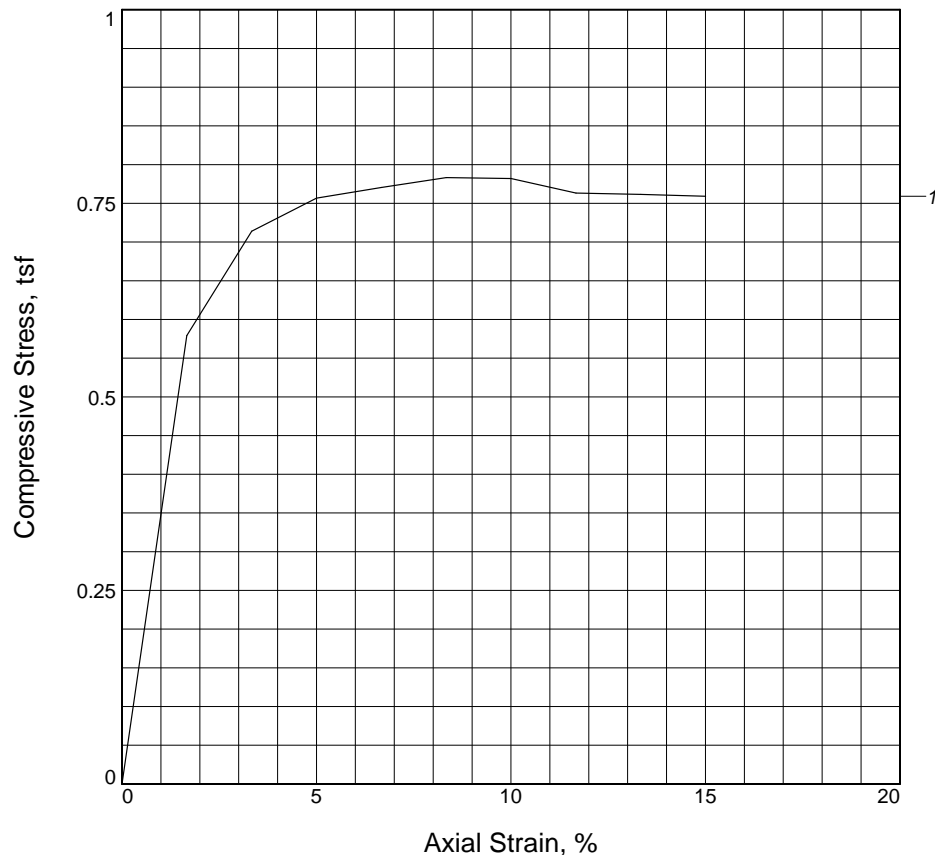
UNCONFINED COMPRESSION TEST

Atlas

Indianapolis, Indiana

Figure QU14646K

UNCONFINED COMPRESSION TEST



Sample No.	1		
Unconfined strength, tsf	0.783		
Undrained shear strength, tsf	0.392		
Failure strain, %	8.3		
Strain rate, %/min.	2.00		
Water content, %	28.2		
Wet density, pcf	121.3		
Dry density, pcf	94.6		
Saturation, %	97.5		
Void ratio	0.7822		
Specimen diameter, in.	1.38		
Specimen height, in.	3.00		
Height/diameter ratio	2.18		

Description:

LL = PL = PI = Assumed GS= 2.7 Type: Split spoon

Project No.: 170GC01517

Date Sampled:

Remarks:

Client: Town of Wheatland

Project: Sewer Improvements, Wheatland

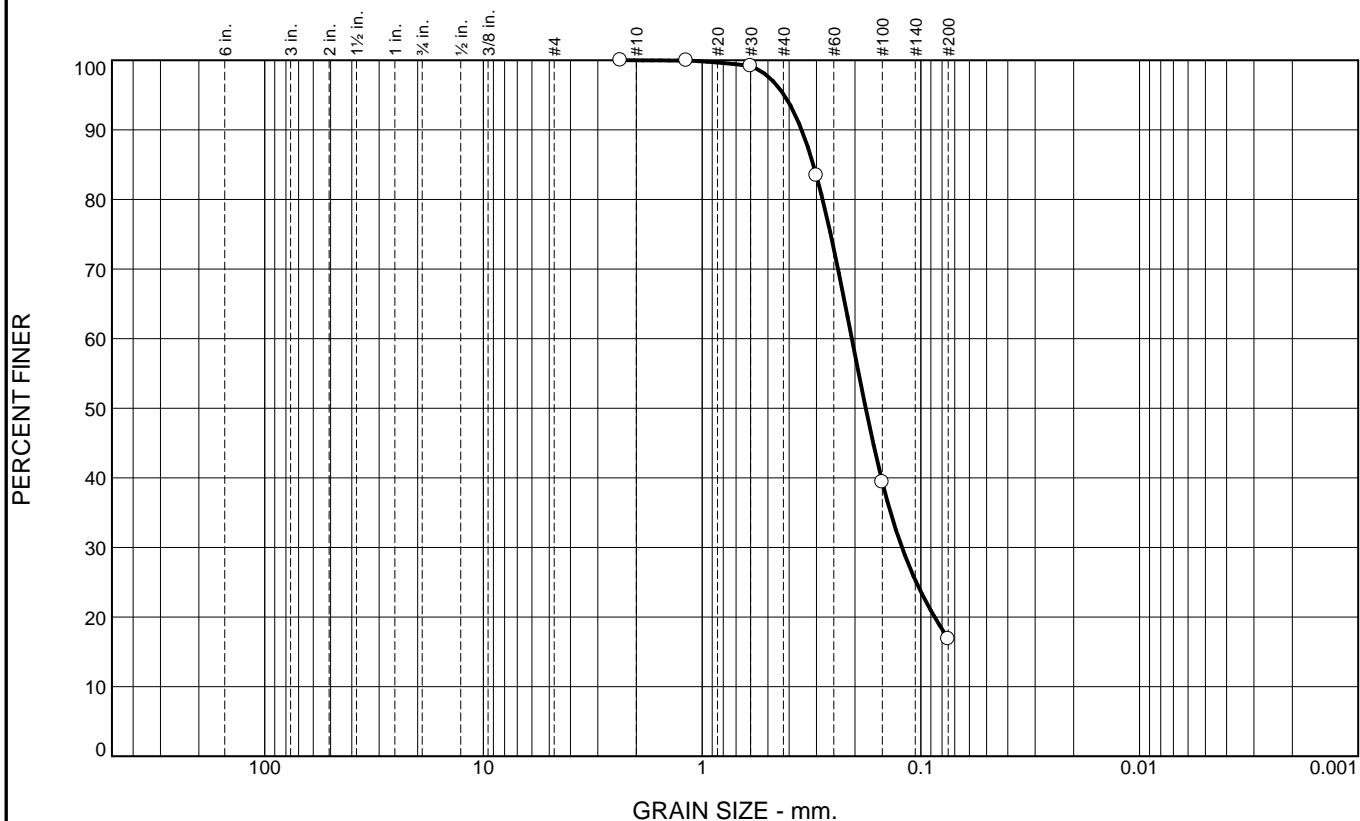
Source of Sample: 14646 **Depth:** 11-12.5'

Sample Number: B-104; S-5

UNCONFINED COMPRESSION TEST
Atlas
Indianapolis, Indiana

Figure QU14646S

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.8	78.3	16.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
#8	100.0		
#16	100.0		
#30	99.2		
#50	83.4		
#100	39.4		
#200	16.9		

Material Description

Silty Sand

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.3508 D₈₅= 0.3099 D₆₀= 0.2067
 D₅₀= 0.1785 D₃₀= 0.1220 D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= SM AASHTO=

Remarks

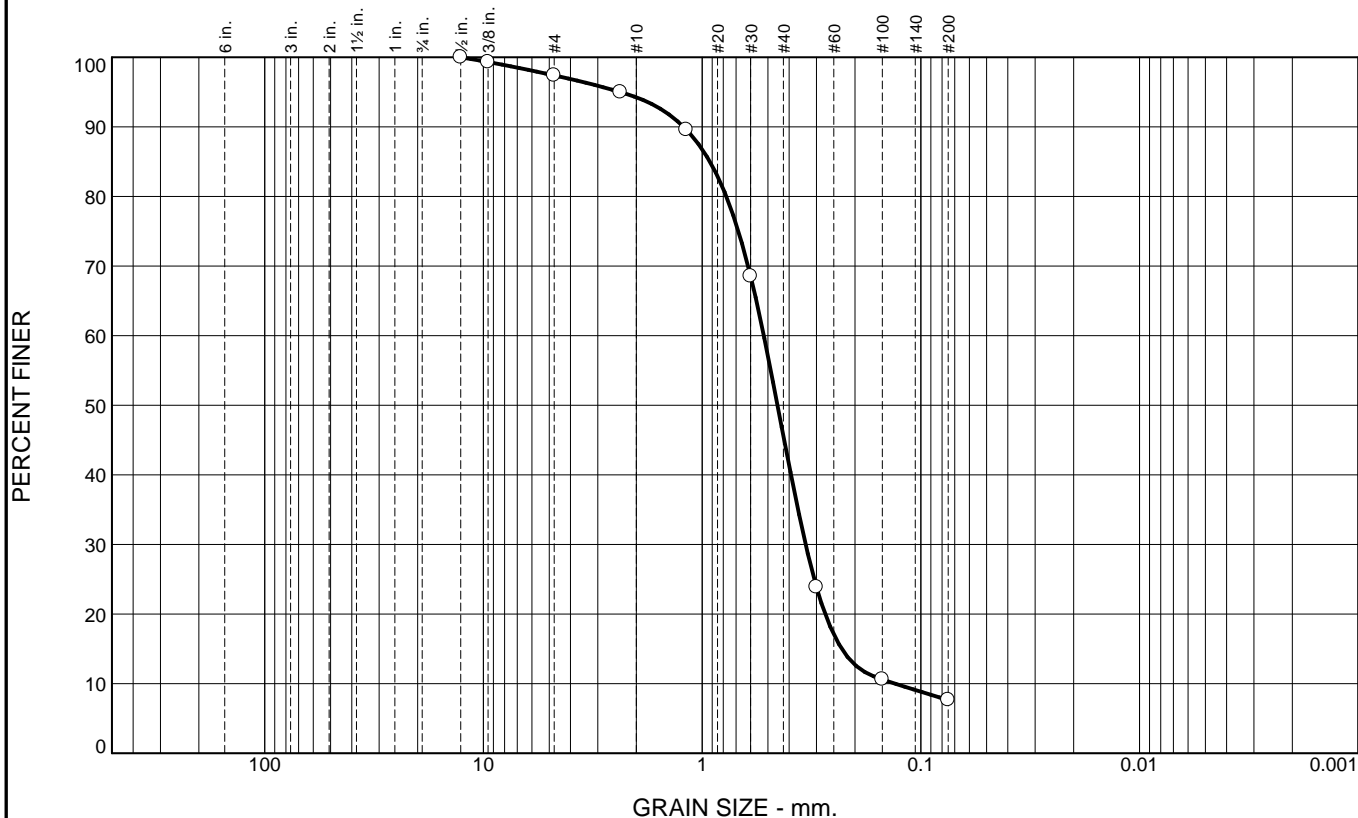
* (no specification provided)

Source of Sample: 14675 Depth: 18.5'-22.5'
 Sample Number: B-101; S-8&9

Date:

<h2 style="margin: 0;">Atlas</h2> <h3 style="margin: 0;">Indianapolis, Indiana</h3>	<p>Client: Town of Wheatland</p> <p>Project: Sewer Improvements, Wheatland</p> <p>Project No: 170GC01517</p>
<p>Figure</p>	

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.6	3.2	48.6	37.9	7.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
1/2"	100.0		
3/8	99.3		
#4	97.4		
#8	95.0		
#16	89.6		
#30	68.5		
#50	23.9		
#100	10.6		
#200	7.7		

Material Description

Sand with trace Silt and Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 1.2158 D₈₅= 0.9211 D₆₀= 0.5224
D₅₀= 0.4522 D₃₀= 0.3362 D₁₅= 0.2299
D₁₀= 0.1309 C_u= 3.99 C_c= 1.65

Classification

USCS= SP-SM AASHTO=

Remarks

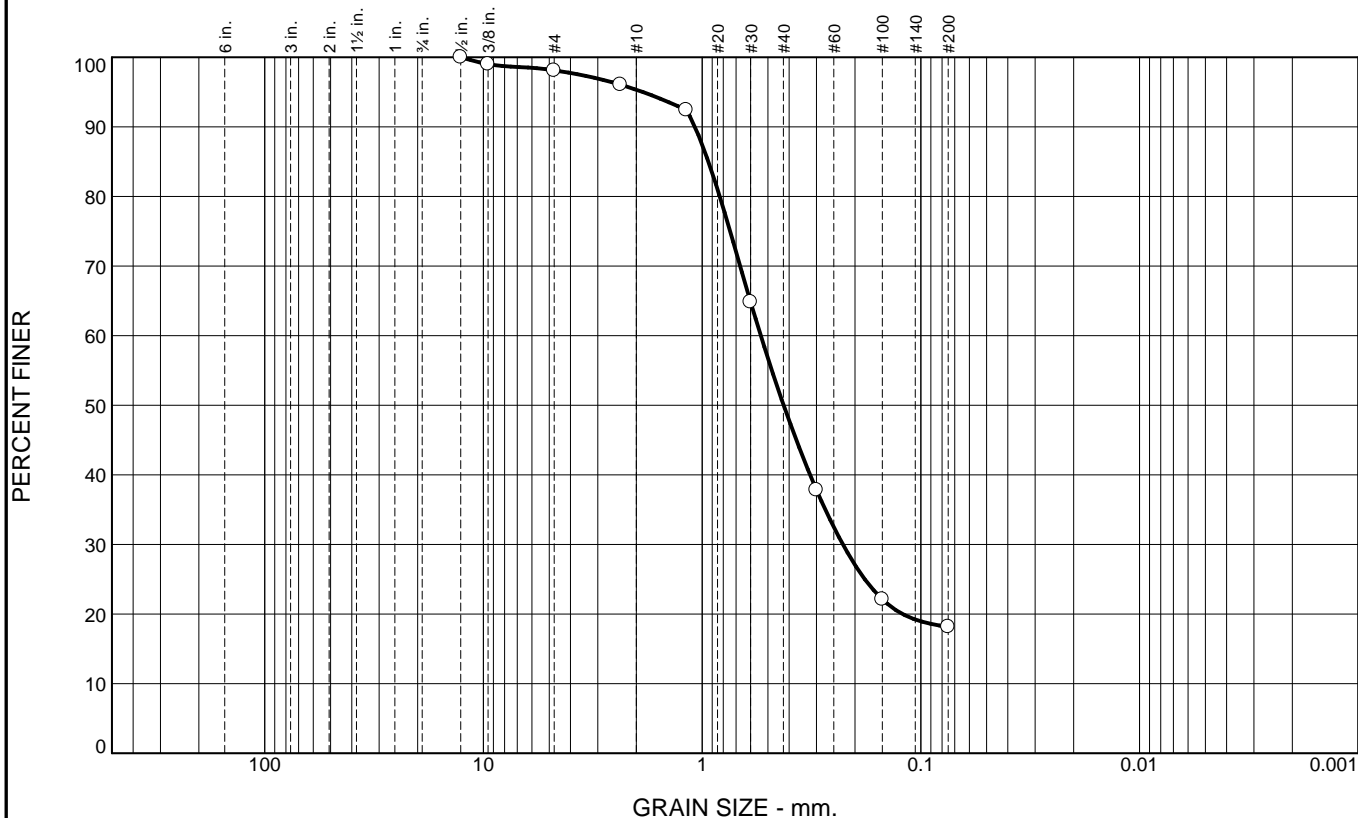
* (no specification provided)

Source of Sample: 14675 Depth: 23.5'-27.5'
Sample Number: B-101; S-10&11

Date:

<p>Atlas</p> <p>Indianapolis, Indiana</p>	<p>Client: Town of Wheatland</p> <p>Project: Sewer Improvements, Wheatland</p> <p>Project No: 170GC01517</p> <p style="text-align: right;">Figure</p>
---	---

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.9	2.8	45.2	31.9	18.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
1/2	100.0		
3/8	99.0		
#4	98.1		
#8	96.1		
#16	92.4		
#30	64.8		
#50	37.8		
#100	22.1		
#200	18.2		

Material Description

Clayey Sand with trace Gravel

PL= _____

Atterberg Limits

LL= _____ PI= _____

Coefficients

D₉₀= 1.0789 D₈₅= 0.9360 D₆₀= 0.5392
D₅₀= 0.4237 D₃₀= 0.2271 D₁₅= _____
D₁₀= _____ C_u= _____ C_c= _____

Classification

USCS= SC AASHTO= _____

Remarks

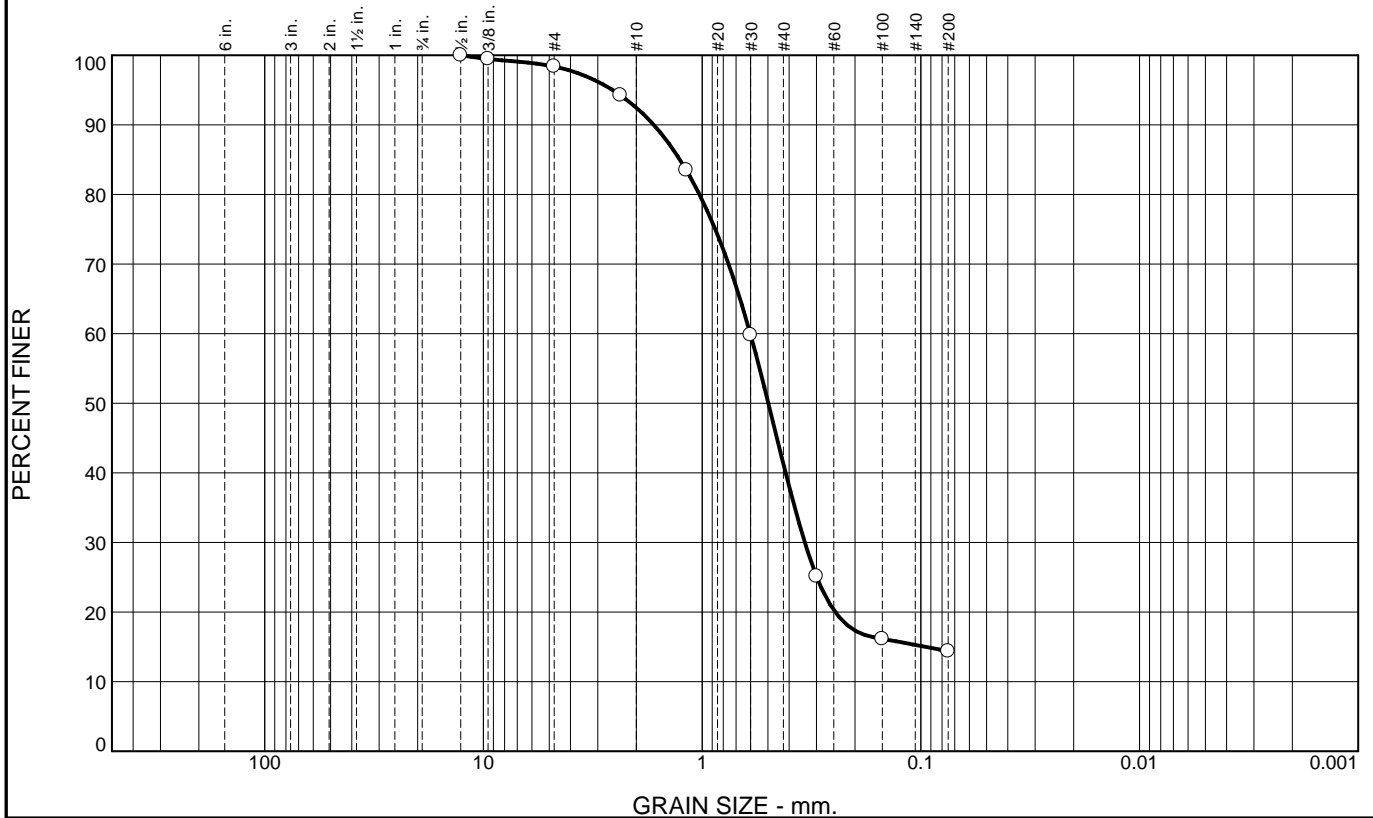
* (no specification provided)

Sample Number: B-110; S-7 & 8 Depth: 16.0'-20.0'

Date: _____

<p>Atlas</p> <p>Indianapolis, Indiana</p>	<p>Client: Town of Wheatland</p> <p>Project: Sewer Improvements, Wheatland</p> <p>Project No: 170GC01517</p> <p style="text-align: right;">Figure</p>
---	---

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.6	5.9	51.2	26.9	14.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
1/2	100.0		
3/8	99.5		
#4	98.4		
#8	94.2		
#16	83.5		
#30	59.8		
#50	25.1		
#100	16.2		
#200	14.4		

Material Description

Clayey Sand with trace Gravel

PL=	Atterberg Limits	PI=
	LL=	
	Coefficients	
D ₉₀ = 1.6642	D ₈₅ = 1.2636	D ₆₀ = 0.6022
D ₅₀ = 0.4980	D ₃₀ = 0.3393	D ₁₅ = 0.0948
D ₁₀ =	C _u =	C _c =
Classification		
USCS= SC AASHTO=		
Remarks		

* (no specification provided)

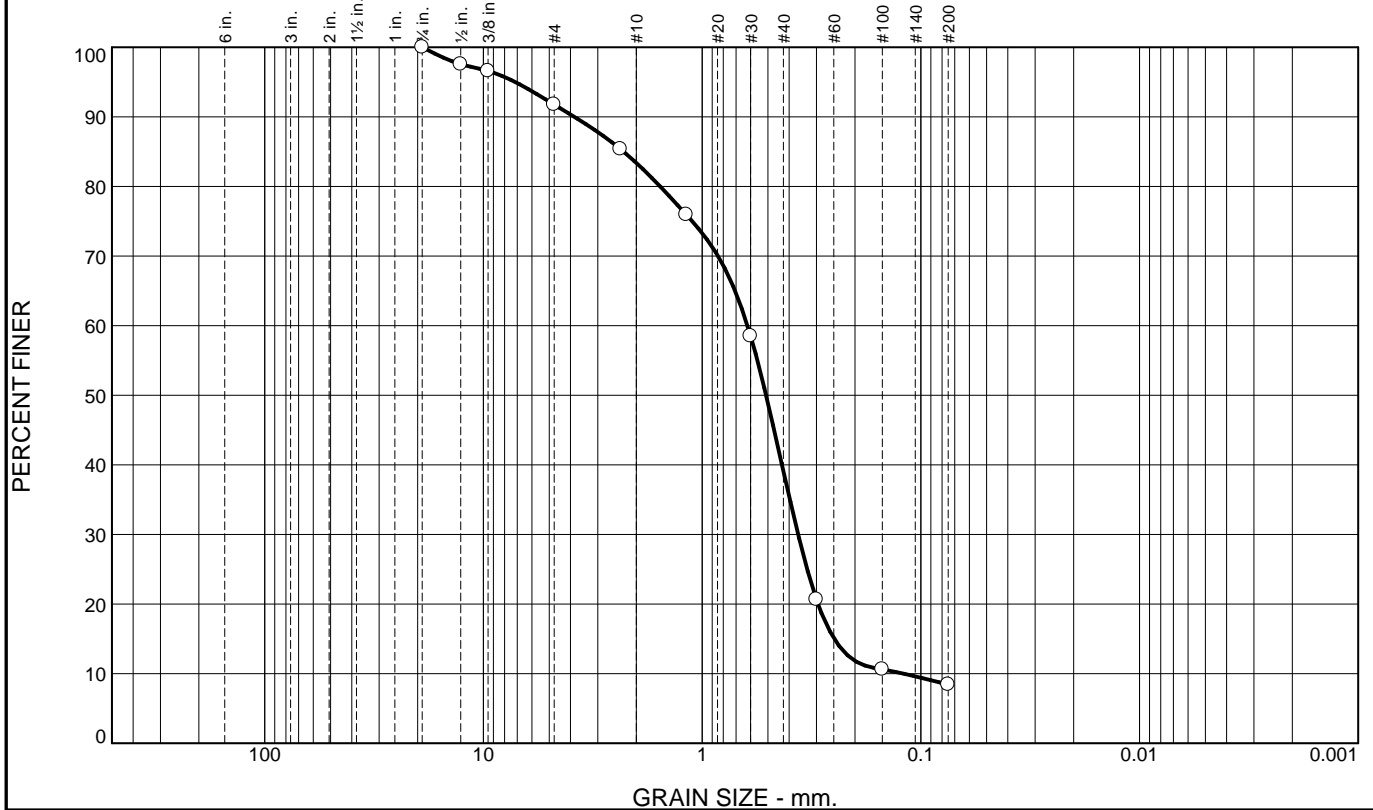
Source of Sample: 14647
Sample Number: B-111; S-6

Depth: 13.5'-15.0'

Date:

<h2 style="margin: 0;">Atlas</h2> <h3 style="margin: 0;">Indianapolis, Indiana</h3>	<p>Client: Town of Wheatland</p> <p>Project: Sewer Improvements, Wheatland</p> <p>Project No: 170GC01517</p> <p style="text-align: right;">Figure</p>
---	---

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	8.2	8.4	44.3	30.7	8.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
3/4	100.0		
1/2	97.6		
3/8	96.6		
#4	91.8		
#8	85.4		
#16	75.9		
#30	58.5		
#50	20.7		
#100	10.6		
#200	8.4		

Material Description

Sand with trace Silt and Gravel

Atterberg Limits

PL= _____ LL= _____ PI= _____

Coefficients

D₉₀= 3.8417 D₈₅= 2.2865 D₆₀= 0.6201
D₅₀= 0.5101 D₃₀= 0.3638 D₁₅= 0.2489
D₁₀= 0.1197 C_u= 5.18 C_c= 1.78

Classification

USCS= SP-SM AASHTO= _____

Remarks

* (no specification provided)

Source of Sample: 14650
Sample Number: B-131; S-9

Depth: 21.0'-22.5'

Date:

<p>Atlas</p> <p>Indianapolis, Indiana</p>	<p>Client: Town of Wheatland</p> <p>Project: Sewer Improvements, Wheatland</p> <p>Project No: 170GC01517</p> <p style="text-align: right;">Figure</p>
---	---

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.8	3.5	34.3	52.0	7.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
3/4	100.0		
1/2	99.7		
3/8	99.1		
#4	97.2		
#8	94.1		
#16	90.6		
#30	82.6		
#50	32.9		
#100	10.0		
#200	7.4		

Material Description

Sand with trace Silt and Gravel

Atterberg Limits

PL= _____ LL= _____ PI= _____

Coefficients

D₉₀= 1.1036 D₈₅= 0.7098 D₆₀= 0.4282
D₅₀= 0.3782 D₃₀= 0.2862 D₁₅= 0.1984
D₁₀= 0.1503 C_u= 2.85 C_c= 1.27

Classification

USCS= SP-SM AASHTO= _____

Remarks

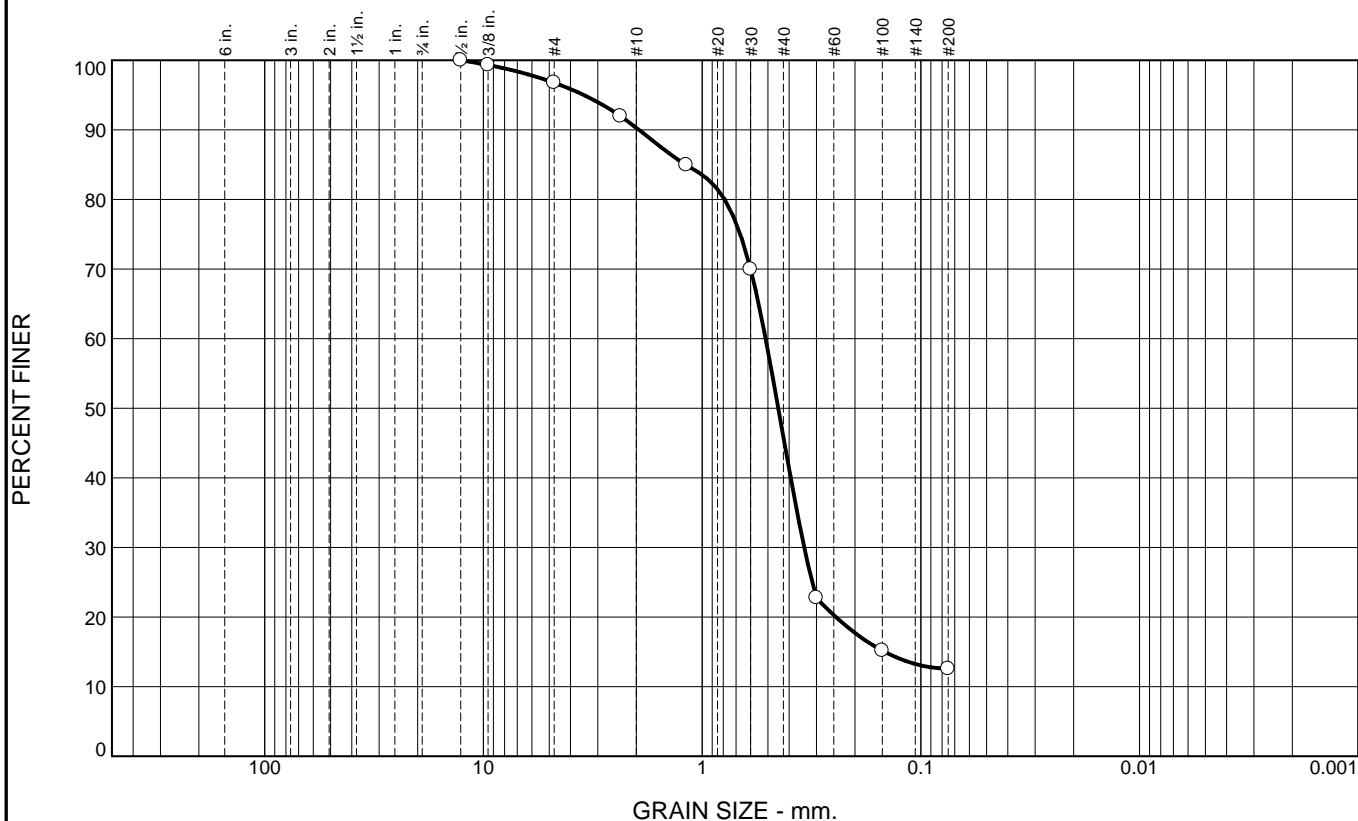
* (no specification provided)

Source of Sample: 14650 Depth: 23.5'-25.0'
Sample Number: B-131; S-10

Date:

<h2 style="margin: 0;">Atlas</h2> <h3 style="margin: 0;">Indianapolis, Indiana</h3>	<p>Client: Town of Wheatland</p> <p>Project: Sewer Improvements, Wheatland</p> <p>Project No: 170GC01517</p>
<p>Figure</p>	

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.2	6.5	44.4	33.3	12.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X-NO)
1/2	100.0		
3/8	99.3		
#4	96.8		
#8	92.0		
#16	84.9		
#30	70.0		
#50	22.8		
#100	15.2		
#200	12.6		

Material Description

Silty Sand with trace Gravel

PL= _____

Atterberg Limits

LL= _____ PI= _____

Coefficients

D₉₀= 1.9443 D₈₅= 1.1895 D₆₀= 0.5125
D₅₀= 0.4483 D₃₀= 0.3415 D₁₅= 0.1462
D₁₀= _____ C_u= _____ C_c= _____

Classification

USCS= SM AASHTO= _____

Remarks

* (no specification provided)

Source of Sample: 14650 Depth: 16.0'-20.0'
Sample Number: B-132; S-7 & 8

Date: _____

<p>Atlas</p> <p>Indianapolis, Indiana</p>	<p>Client: Town of Wheatland</p> <p>Project: Sewer Improvements, Wheatland</p> <p>Project No: 170GC01517</p> <p style="text-align: right;">Figure</p>
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Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply this report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an

assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by:* the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help

others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold-prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical-engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your GBC-Member geotechnical engineer for more information.



8811 Colesville Road/Suite G106, Silver Spring, MD 20910

Telephone: 301/565-2733 Facsimile: 301/589-2017

e-mail: info@geoprofessional.org www.geoprofessional.org

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APPENDIX B: FWS Tree Mitigation Requirements



Division of Historic Preservation & Archaeology 402 W. Washington Street, W274 Indianapolis, IN 46204-2739
Phone 317-232-1646 Fax 317-232-0693 dhpa@dnr.IN.gov



February 19, 2021

Mike Kleinpeter
Kleinpeter Consulting Group LLC
P.O. Box 37
Whiteland, IN 46184

Federal Agency: USDA, Rural Development

Re: Project information concerning wastewater system improvements (DHPA #26969)

Dear Mr. Kleinpeter:

Pursuant to Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108) and 36 C.F.R. Part 800, the staff of the Indiana State Historic Preservation Officer ("Indiana SHPO") has conducted an analysis of the materials dated January 27, 2021 and received on January 29, 2021, for the above indicated project in Wheatland, Knox County, Indiana.

Based upon the documentation available to the staff of the Indiana SHPO, we have not identified any historic buildings, structures, districts, or objects listed in or eligible for inclusion in the National Register of Historic Places within the probable area of potential effects.

In terms of archaeology, no currently known archaeological resources eligible for inclusion in the National Register of Historic Places have been recorded within the proposed project area. No archaeological investigations appear necessary provided that all project activities remain within areas disturbed by previous construction. It is our understanding that the Wheatland Cemetery is near the proposed project area but that the project activities will remain within disturbed areas.

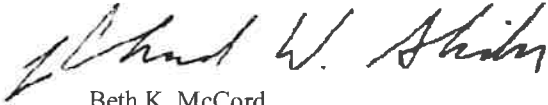
If any prehistoric or historic archaeological artifacts or human remains are uncovered during construction, demolition, or earthmoving activities, state law (Indiana Code 14-21-1-27 and 29) requires that the discovery must be reported to the Department of Natural Resources within two (2) business days. In that event, please call (317) 232-1646. Be advised that adherence to Indiana Code 14-21-1-27 and 29 does not obviate the need to adhere to applicable federal statutes and regulations, including but not limited to 36 C.F.R. 800.

At this time, it would be appropriate for the USDA, Rural Development to analyze the information that has been gathered from the Indiana SHPO, the general public, and any other consulting parties and make the necessary determinations and findings. Please refer to the following comments for guidance:

- 1) If the USDA, Rural Development believes that a determination of "no historic properties affected" accurately reflects its assessment, then it shall provide documentation of its finding as set forth in 36 C.F.R. § 800.11 to the Indiana SHPO, notify all consulting parties, and make the documentation available for public inspection (36 C.F.R. §§ 800.4[d][1] and 800.2[d][2]).
- 2) If, on the other hand, the USDA, Rural Development finds that an historic property may be affected, then it shall notify the Indiana SHPO, the public and all consulting parties of its finding and seek views on effects in accordance with 36 C.F.R. §§ 800.4(d)(2) and 800.2(d)(2). Thereafter, the USDA, Rural Development may proceed to apply the criteria of adverse effect and determine whether the project will result in a "no adverse effect" or an "adverse effect" in accordance with 36 C.F.R. § 800.5.

The 36 C.F.R. Part 800 regulations governing the Section 106 review process may be found at www.achp.gov. If you have questions about archaeological issues please contact Cathy Draeger-Williams at (317) 234-3791 or cdraeger-williams@dnr.IN.gov. If you have questions about buildings or structures please contact Kim Marie Padgett at (317) 234-6705 or kpadgett@dnr.IN.gov. Additionally, in all future correspondence regarding the above indicated project, please refer to DHPA #26969.

Very truly yours,



Beth K. McCord
Deputy State Historic Preservation Officer

BKM:KMP:CDW:cdw

cnc: Rochelle Owen, USDA, Rural Development
Krueger Pfister, USDA, Rural Development
Cynthia Ferguson, USDA, Rural Development
Mike Kleinpeter, Kleinpeter Consulting Group, LLC



Division of Nature Preserves
402 W. Washington St., Rm W267
Indianapolis, IN 46204-2739

February 9, 2021

Mike Kleinpeter
Kleinpeter Consulting Group LLC
P.O. Box 37
Whiteland, IN 46184

Dear Mike Kleinpeter:

I am responding to your request for information on the threatened or endangered (T&E) species, high quality natural communities, and natural areas for the Town of Wheatland Wastewater Improvements Project located in Knox County, Indiana. The Indiana Natural Heritage Data Center has been checked and included you will find a datasheet with information on the T&E species documented within 0.5 mile of the project area.

If you need a review of the impacts to the animal species mentioned or a general environmental review, you can submit the project information to Christie Stanifer, DNR Environmental Coordinator, at environmentalreview@dnr.in.gov (preferred), or send to the street address below. For more help or guidance contact Christie Stanifer at cstanifer@dnr.in.gov.

Department of Natural Resources
Environmental Review
Division of Fish and Wildlife
402 W. Washington Street, Room W273
Indianapolis, IN 46204

The information I am providing does not preclude the requirement for further consultation with the U.S. Fish and Wildlife Service as required under Section 7 of the Endangered Species Act of 1973. If you have concerns about potential Endangered Species Act issues you should contact the Service at their Bloomington, Indiana office.

U.S. Fish and Wildlife Service
620 South Walker St.
Bloomington, Indiana 47403-2121
812-334-4261

Please note that the Indiana Natural Heritage Data Center relies on the observations of many individuals for our data. In most cases, the information is not the result of comprehensive field surveys conducted at particular sites. Therefore, our statement that there are no documented significant natural features at a site should not be interpreted to mean that the site does not support special plants or animals.

Due to the dynamic nature and sensitivity of the data, this information should not be used for any project other than that for which it was originally intended. It may be necessary for you to request updated material from us in order to base your planning decisions on the most current information.

Thank you for contacting the Indiana Natural Heritage Data Center. You may reach me at (317)233-2558 if you have any questions or need additional information.

Sincerely,

A handwritten signature in cursive script that reads "Taylor Davis".

Taylor Davis
Indiana Natural Heritage Data Center

Enclosure: datasheet

February 9, 2021

INDIANA HERITAGE DATA WITHIN 0.5 MILE OF:
Town of Wheatland Wastewater Improvements Project, Knox County

Sci. Name	Com. Name	State	Fed.	Date	Site
Bird					
<i>Lanius ludovicianus</i>	Loggerhead Shrike	SE		1980	MONROE CITY
<i>Tyto alba</i>	Barn Owl	SE		1980	ROBINSON'S BIN
Reptile					
<i>Nerodia erythrogaster neglecta</i>	copperbelly water snake	SE	PS:LT	0	WHEATLAND

Fed: LE = Listed Federal endangered; LT = Listed Federal threatened; C = Federal candidate species

State: SE = State endangered; ST = State threatened; SR = State rare; SSC = State species of special concern; SG = State significant; WL = watch list; no rank - not ranked but tracked to monitor status



DATA REQUEST

State Form 56461 (R2 / 8-20)
DEPARTMENT OF NATURAL RESOURCES

Please submit this form by e-mail: tdavis@dnr.in.gov

Or fax: 317-974-2008

Or mail:

Indiana Natural Heritage Data Center
IN DNR Nature Preserves
402 W. Washington Street, Rm W267
Indianapolis, Indiana 46204



INSTRUCTIONS: E-mail, fax, or mail to contact above:

1. This completed **Data Request form**. Form and information available at <http://www.in.gov/dnr/naturepreserve/4746.htm>.
2. A **map** showing the project location and extent, include the nearest major road intersection for verification. Additional pages showing the general area may be provided. Construction CAD drawings are not required or needed.
3. If the project boundary is large, complex, or a linear corridor, please provide a **GIS shapefile**.
4. The **charge is \$42** per one half hour, one half hour minimum, per IC 14-10-2-1. An invoice will be included with the completed request response. This fee is waived for non-profit organizations, other governmental agencies, and educational research projects.
5. Please feel free to include any further information that you believe will help us best serve your project needs.

Date submitted (month, day, year)

CONTACT INFORMATION

Name				
Company				
Address (number and street)		City	State	ZIP code
Telephone number () ()	Fax number () ()	E-mail address		

PROJECT INFORMATION

Name of project				
Project number				
Description				
Location latitude (decimal degrees or UTM 16 N)			Location longitude (decimal degrees or UTM 16 N)	
County	Topographic quadrant	Section	Township	Range
Project address (number and street, city, state, and ZIP code) (if applicable)				
Purpose of request				
<input type="checkbox"/> Permit Application (DNR, IDEM, USACE)		<input type="checkbox"/> Research Project		<input type="checkbox"/> Siting Survey
<input type="checkbox"/> USDA Rural Development		<input type="checkbox"/> Other: _____		
Requested search radius				
<input type="checkbox"/> Default 0.5 mile		<input type="checkbox"/> Custom distance: _____		
Project Funding				
<input type="checkbox"/> Private	<input type="checkbox"/> Governmental (Local / Federal)	<input type="checkbox"/> Educational	<input type="checkbox"/> Non-Profit	

FOR OFFICE USE ONLY
 Invoice number
 Fee
 Date returned (month, day, year)
 Check number / last four digits credit card number
 Paid date (month, day, year)

THIS IS NOT A PERMIT

State of Indiana
DEPARTMENT OF NATURAL RESOURCES
Division of Fish and Wildlife
Early Coordination/Environmental Assessment

DNR #: ER-23403

Request Received: February 3, 2021

Requestor: Kleinpeter Consulting Group LLC
Mike Kleinpeter
PO Box 37
Whiteland, IN 46184

Project: Town of Wheatland wastewater system improvements

County/Site info: Knox

The Indiana Department of Natural Resources has reviewed the above referenced project per your request. Our agency offers the following comments for your information and in accordance with the National Environmental Policy Act of 1969.

If our agency has regulatory jurisdiction over the project, the recommendations contained in this letter may become requirements of any permit issued. If we do not have permitting authority, all recommendations are voluntary.

Regulatory Assessment: This proposal will require the formal approval for construction in a floodway under the Flood Control Act, IC 14-28-1, unless it qualifies for a general license under Administrative Rule 312 IAC 10-5 that applies to utility line crossings (see enclosure). Please include a copy of this letter with the permit application if the project does not meet the general license criteria.

Natural Heritage Database: The Natural Heritage Program's data have been checked. To date, no plant or animal species listed as state or federally threatened, endangered, or rare have been reported to occur in the project vicinity.

Fish & Wildlife Comments: Avoid and minimize impacts to fish, wildlife, and botanical resources to the greatest extent possible, and compensate for impacts. The following are recommendations that address potential impacts identified in the proposed project area:

1) Utility Line Crossings:

Place any new or replacement lines within, or as close to, the cleared road right-of-way or previously-disturbed area as possible to minimize impacts to forested areas. We recommend that all creek or stream crossings, and areas with forested habitat, be done using a trenchless method. The length of the bore at a stream crossing should include any forested riparian areas to minimize impacts to forested habitat. Install erosion control measures such as silt fencing or other appropriate devices around directional drilling pits in order to prevent drilling mud from leaving the immediate area of the pit or entering the stream.

If the open-trench method is necessary and the only feasible option at any of the planned stream crossings due to the site conditions, then the following measures should be implemented:

a. Any open-trench stream crossing should be timed to coincide with the low-water time of year (typically mid- to late-summer).

b. Restore disturbed streambanks using bioengineering bank stabilization methods and revegetate disturbed banks with native trees, shrubs and herbaceous plants. Stream bank slopes after project completion should be restored to stable-slope steepness (not steeper than 2:1). Bioengineered bank stabilization methods are presented in the bioengineering manuals located at:

<http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17553.wba> or
<https://www.in.gov/nrc/2375.htm>; NPD#71.

Attachments: A - Utility Exemption Criteria

State of Indiana
DEPARTMENT OF NATURAL RESOURCES
Division of Fish and Wildlife
Early Coordination/Environmental Assessment

c. The cleared width through any forested area should be the minimum needed to install the line and no more than 20 feet wide through the forested area to allow the canopy to close over the line.

d. Use graded stone or riprap to protect the section of trench below the normal water level from scour or erosion (any stone or riprap fill in the streambed must not be placed above the existing streambed elevation to avoid creating a fish passage obstruction).

2) Riparian Habitat:

We recommend a mitigation plan be developed (and submitted with the permit application, if required) for any unavoidable habitat impacts that will occur. The DNR's Habitat Mitigation Guidelines (and plant lists) can be found online at:

<http://iac.iga.in.gov/iac/20200527-IR-312200284NRA.xml.pdf>.

Impacts to non-wetland forest of one (1) acre or more should be mitigated at a minimum 2:1 ratio. If less than one acre of non-wetland forest is removed in a rural setting, replacement should be at a 1:1 ratio based on area. Impacts to non-wetland forest under one (1) acre in an urban setting should be mitigated by planting five trees, at least 2 inches in diameter-at-breast height (dbh), for each tree which is removed that is 10" dbh or greater (5:1 mitigation based on the number of large trees) or by using the 1:1 replacement ratio based on area depending on the type of habitat impacted (individual canopy tree removal in an urban streetscape or park-like environment versus removal of habitat supporting a tree canopy, woody understory, and herbaceous layer). Impacts under 0.10 acre in an urban area may still involve the replacement of large diameter trees but typically do not require any additional mitigation or additional plantings beyond seeding and stabilizing disturbed areas. There are exceptions for high quality habitat sites however.

The mitigation site should be located in the floodway, downstream of the one (1) square mile drainage area of that stream (or another stream within the 8-digit HUC, preferably as close to the impact site as possible) and adjacent to existing forested riparian habitat.

The additional measures listed below should be implemented to avoid, minimize, or compensate for impacts to fish, wildlife, and botanical resources:

1. Revegetate all bare and disturbed areas with a mixture of native grasses, sedges, wildflowers, and also native hardwood trees and shrubs if any woody plants are disturbed during construction as soon as possible upon completion. Do not use any varieties of Tall Fescue or other non-native plants, including prohibited invasive species (see 312 IAC 18-3-25).
2. Minimize and contain within the project limits inchannel disturbance and the clearing of trees and brush.
3. Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Fish and Wildlife.
4. Do not cut any trees suitable for Indiana bat or Northern Long-eared bat roosting (greater than 5 inches dbh, living or dead, with loose hanging bark, or with cracks, crevices, or cavities) from April 1 through September 30.
5. Use minimum average 6 inch graded riprap stone extended below the normal water level to provide habitat for aquatic organisms in the voids.
6. Plant native hardwood trees along the top of the bank and right-of-way to replace the vegetation destroyed during construction.
7. Appropriately designed measures for controlling erosion and sediment must be implemented to prevent sediment from entering the stream or leaving the construction site; maintain these measures until construction is complete and all disturbed areas are stabilized.
8. Seed and protect all disturbed streambanks and slopes not protected by other methods that are 3:1 or steeper with erosion control blankets that are heavy-duty,

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State of Indiana
DEPARTMENT OF NATURAL RESOURCES
Division of Fish and Wildlife
Early Coordination/Environmental Assessment

biodegradable, and net free or that use loose-woven / Leno-woven netting to minimize the entrapment and snaring of small-bodied wildlife such as snakes and turtles (follow manufacturer's recommendations for selection and installation); seed and apply mulch on all other disturbed areas.

Contact Staff:

Christie L. Stanifer, Environ. Coordinator, Fish & Wildlife
Our agency appreciates this opportunity to be of service. Please contact the above staff member at (317) 232-4080 if we can be of further assistance.

Christie L. Stanifer

Date: March 4, 2021

Christie L. Stanifer
Environ. Coordinator
Division of Fish and Wildlife

ARTICLE 10. FLOOD PLAIN MANAGEMENT

312 IAC 10-2-42 "Utility line crossing" defined

Authority: IC 14-28-1-5; IC 14-28-3-2

Affected: IC 14-27-7; IC 14-28-1; IC 14-28-3

Sec. 42. "Utility line crossing" means the utility crosses the waterway in a straight line at an angle of between forty-five (45) degrees and one hundred thirty-five (135) degrees from the streambank and does not parallel the waterway for more than fifty (50) feet in the floodway before crossing unless the parallel portion of the line is contained within existing road right-of-way. *(Natural Resources Commission; 312 IAC 10-2-42; filed Jul 5, 2001, 9:12 a.m.: 24 IR 3389, eff Jan 1, 2002)*

Rule 5. General Licenses and Specific Exemptions from Floodway Licensing

312 IAC 10-5-0.3 Determining project eligibility for a general license; general criteria

Authority: IC 14-10-2-4; IC 14-28-1-5

Affected: IC 14-28-1; IC 14-29-1

Sec. 0.3. (a) Except as provided in subsections (b) and (c), a project for a utility line crossing, the removal of logjams and obstructions, or the placement of outfall projects within a floodway is eligible for a general license if the project satisfies the requirements of this rule. For the removal of logjams and obstructions, these requirements include the procedures established by section 0.6 of this rule.

(b) Subsection (a) does not authorize a project in any of the following circumstances:

(1) Within a river or stream listed in the Indiana Register at 16 IR 1677 in the Outstanding Rivers List for Indiana unless prior written approval from the division of water's environmental unit has been obtained.

(2) Within a salmonid stream designated under 327 IAC 2-1.5-5(a)(3).

(3) Within a natural, scenic, or recreational river or stream designated under 312 IAC 7-2.

(4) For a utility line crossing, below the ordinary high watermark of a navigable waterway listed in the Indiana Register at 20 IR 2920 in the Roster of Indiana Waterways Declared Navigable or Nonnavigable unless the utility line is placed beneath the bed of the waterway under section 4(b) of this rule.

(5) Where the project requires an individual permit from the United States Army Corps of Engineers under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.

(c) Subsection (a) does not authorize the removal of logjams or obstructions within one-half (½) mile of any of the following:

(1) A species listed in the Indiana Register at 15 IR 1312 in the Roster of Indiana Animals and Plants Which Are Extirpated, Endangered, Threatened, or Rare.

(2) A known mussel resource.

(3) An outstanding natural area, as contained on the registry of natural areas maintained in the natural heritage data center of the department.

(d) The limitations contained in subsection (b) and subsection (c) [subsections (b) and (c)] do not apply to section 7 of this rule.

(Natural Resources Commission; 312 IAC 10-5-0.3; filed Aug 2, 2004, 3:18 p.m.: 27 IR 3875)

312 IAC 10-5-2 General licensing for utility line crossings

Authority: IC 14-10-2-4; IC 14-28-1-5

Affected: IC 14-27-7; IC 14-28-1; IC 14-29-1

Sec. 2. Except as provided in sections 3 and 4 of this rule, a license is required under IC 14-28-1, IC 14-29-1, and 312 IAC 10-4 to place a utility line in or on a floodway where:

(1) the drainage area of a river or stream is at least one (1) square mile at the downstream end of the line's floodway segment; or

(2) a dam or levee regulated under IC 14-27-7 is affected.

(Natural Resources Commission; 312 IAC 10-5-2; filed Jul 5, 2001, 9:12 a.m.: 24 IR 3394, eff Jan 1, 2002)

312 IAC 10-5-3 Aerial electric, telephone, or cable television lines; general license

Authority: IC 14-10-2-4; IC 14-28-1-5

Affected: IC 14-28-1; IC 14-29-1; IC 14-29-6

Sec. 3. The placement of an aerial electric, telephone, or cable television line is authorized without a written license issued by the department under IC 14-28-1, IC 14-29-1, and 312 IAC 10-4 if:

(1) the activity does not disturb the bed of the waterway beneath the line;

(2) the activity conforms with the minimum clearance requirements of section 4(b)(9) of this rule;

(3) the support mechanisms are located at least seventy-five (75) feet from the top of the bank; and

(4) the utility line crossing is not within the floodway of a natural river, scenic river, or recreational river designated under 312 IAC 7-2.

(Natural Resources Commission; 312 IAC 10-5-3; filed Jul 5, 2001, 9:12 a.m.: 24 IR 3394, eff Jan 1, 2002; filed Aug 2, 2004, 3:18 p.m.: 27 IR 3876)

312 IAC 10-5-4 Qualified utility line crossings; general license

Authority: IC 14-10-2-4

Affected: IC 13-11-2-260; IC 14-27-7; IC 14-28-1-29; IC 14-33; IC 36-9-27

Sec. 4. (a) This section establishes a general license for the placement of a qualified utility line crossing in a floodway.

(b) A person who wishes to implement a project for the placement of a qualified utility line crossing on a river or stream, other than on a river or stream identified in section 0.3(b) or 0.3(c) of this rule, may do so without notice to the department if the project conforms to the following conditions:

(1) Tree removal and brush clearing shall be contained and minimized within the utility line crossing area. No more than one (1) acre of trees shall be removed within the floodway.

(2) Construction activities within the waterway from April 1 through June 30 shall not exceed a total of two (2) calendar days.

(3) Best management practices shall be used during and after construction to minimize erosion and sedimentation.

(4) Following the completion of construction, disturbed areas shall be reclaimed and revegetated. Disturbed areas shall be mulched with straw, wood fiber, biodegradable erosion blanket, or other suitable material. To prevent erosion until revegetated species are established, loose mulch shall be anchored by crimping, tackifiers, or netting. To the extent practicable, revegetation must restore species native to the site. If revegetation with native species is not practicable, revegetation shall be performed by the planting of a mixture of red clover, orchard grass, timothy, perennial rye grass, or another species that is approved by the department as being suitable to site and climate conditions. In no case shall tall fescue be used to revegetate disturbed areas.

(5) Disturbed areas with slopes of three to one (3:1) or steeper, or areas where run-off is conveyed through a channel or swale, shall be stabilized with erosion control blankets or suitable structural armament.

(6) No pesticide will be used on the banks.

(7) If a utility line transports a substance that may cause water pollution as defined in IC 13-11-2-260, the utility line will be equipped with an emergency closure system.

(8) If a utility line is placed beneath the bed of a river or stream, the following conditions are met:

(A) Cover of at least three (3) feet measured perpendicularly to the utility line is provided between the utility line and the banks.

(B) If the placement of a utility line is not subject to regulation under IC 14-28-1-29, IC 14-33, or IC 36-9-27, cover is provided as follows:

(i) At least three (3) feet, measured perpendicularly to the utility line, between the lowest point of the bed and the top of the utility line or its encasement, whichever is higher, if the bed is composed of unconsolidated materials.

(ii) At least one (1) foot, measured perpendicularly to the line, between the lowest point of the bed and the top of the utility line or its encasement, whichever is higher, if the bed is composed of consolidated materials.

(C) If the placement of the utility line is subject to regulation under IC 14-28-1-29, IC 14-33, or IC 36-9-27, cover is provided as follows:

(i) At least three (3) feet, measured perpendicularly to the utility line, between the design bed and the top of the line or its encasement, whichever is higher, if the bed is composed of unconsolidated materials.

(ii) At least one (1) foot, measured perpendicularly to the line, between the design bed and the top of the line or its encasement, whichever is higher, if the bed is composed of consolidated materials.

(D) Negative buoyancy compensation is provided where the utility line has a nominal diameter of at least eight (8) inches and transports a substance having a specific gravity of less than one (1).

(9) If a utility line is placed above the bed of a river or stream, the following conditions are met:

(A) Except as provided in clauses (B) and (C), minimum clearance is provided from the lowest point of the utility line (determined at the temperature, load, wind, length of span, and type of supports that produce the greatest sag) calculated as the higher of the following:

(i) Twelve and one-half (12½) feet above the ordinary high watermark.

(ii) Three (3) feet above the regulatory flood elevation.

(B) If the river or stream is a navigable waterway that is subject to IC 14-28-1, the utility line that crosses over the waterway must be placed to provide the greater of the following:

(i) The minimum clearance required under clause (A).

(ii) The minimum clearance required for the largest watercraft that is capable of using the waterway. The utility must consult in advance with the department to determine the minimum clearance for watercraft at the crossing.

(C) If a utility line is attached to or contained in the embankment of an existing bridge or culvert, no portion of the utility line or its support mechanism may project below the low structure elevation or otherwise reduce the effective waterway area.

(10) A utility line placed in a dam or levee regulated under IC 14-27-7 does not qualify for a general license under this subsection.

(c) A person who elects to act under this section must comply with the general conditions under subsection (b). Failure to comply with these terms and conditions may result in the revocation of the general license, a civil penalty, a commission charge, and any other sanction provided by law for the violation of a license issued under IC 14-28-1 and, if the waterway is navigable, the violation of a license issued under IC 14-29-1. (*Natural Resources Commission; 312 IAC 10-5-4; filed Jul 5, 2001, 9:12 a.m.: 24 IR 3394, eff Jan 1, 2002; filed Dec 26, 2001, 2:42 p.m.: 25 IR 1545; errata filed Mar 13, 2002, 11:51 a.m.: 25 IR 2521; filed Aug 2, 2004, 3:18 p.m.: 27 IR 3876*)



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
REGULATORY, SOUTH BRANCH
6855 SR 66
NEWBURGH, IN 47630

March 3, 2021

Regulatory Division
South Branch
LRL-2021-185-jws

Mike Kleinpeter
Kleinpeter Consulting Group
627 West Street
Whiteland, IN 46184

Dear Mr. Kleinpeter:

This is in regard to your letter, dated January 27, 2021, concerning a proposal for a wastewater improvement project in Wheatland, Knox County, Indiana. The improvements include the construction/installation of approximately 29,000 ft of 8-inch gravity sanitary sewer, 100 48-inch sanitary manholes, a 100 gpm regional pump station or a packaged treatment plant, 31,000 feet of 6-inch force main, and the decommission of 184 septic systems. Work involved with WOTUS in the project area would avoid impacts by trenchless practices. No temporary impacts are anticipated to complete the project. We have reviewed the submitted application in accordance with the provisions of Section 404 of the Clean Water Act.

Based on the information submitted by you, it does not appear that a Department of the Army permit will be needed since the project referenced above would not involve a discharge of dredged and/or fill material below the Ordinary High Water elevation of any "waters of the United States (U.S.)" or any wetlands. "Waters of the U.S." include all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce. This jurisdictional determination is valid for a period of 5 years from the date of this letter unless new information warrants revision of the determination before the expiration date.

If the project would necessitate the discharge of dredged or fill material into "waters of the U.S.," including wetlands, plans should be submitted for our review.

Our comments on this project are limited to only those effects which may fall within our area of jurisdiction and thus does not obviate the need to obtain other permits from State or local agencies. Lack of comments on other environmental aspects should not be construed as either concurrence or nonconcurrence with stated environmental effects.

If we can be of any further assistance, please contact the Newburgh Regulatory Office at 6855 State Road 66, Newburgh, IN 47630-9794, ATTN: CELRL-RDS or contact me at 812-965-6439 or jason.w.saxton@usace.army.mil. Any correspondence on this matter should refer to our ID Number LRL-2021-185-jws.

Sincerely,



Jason W. Saxton
Project Manager
South Branch



Eric J. Holcomb
Governor

Kristina M. Box, MD, FACOG
State Health Commissioner

February 23, 2021

Mike Kleinpeter, MBA
Kleinpeter Consulting
Group, LLC
627 West Street
Whiteland, IN 46184

Re: Town of Wheatland
Wastewater Improvement
Project
Environmental Review
Knox County

Dear Mr. Kleinpeter:

In regards to the above referenced project, I am responding to the environmental review documents received by our office.

Based on information available to this office, we have no reservation about the proposed project and foresee no significant environmental health related hazards.

If you should have any further questions regarding this matter, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink that reads "Michael Mettler".

Michael Mettler, REHS, Director
Environmental Public Health Division
100 N. Senate Avenue, N-855
Indianapolis, IN 46204
317/233-7183
mmettler@isdh.in.gov

cc: Knox County Health Department

To **promote**, **protect**, and **improve** the health and safety of all Hoosiers.

February 22, 2021

Mike Kleinpeter
Kleinpeter Consulting Group LLC
627 West Street
Whiteland, Indiana 46184

Dear Mr. Kleinpeter:

The proposed project to make wastewater improvements in the Town of Wheatland, Knox County, Indiana, as referred to in your letter received January 27, 2021 will cause a conversion of prime farmland.

The attached packet of information is for your use completing Parts VI and VII of the AD-1106. After completion, the federal funding agency needs to forward one copy to NRCS for our records.

If you need additional information, please contact John Allen at 317-295-5859.

Sincerely,

RICHARD Digitally signed by
RICHARD NEILSON
NEILSON Date: 2021.02.23
14:47:51 -05'00'

RICK NEILSON
State Soil Scientist

Enclosures



February 22, 2021

Mike Kleinpeter
Kleinpeter Consulting Group LLC
627 West Street
Whiteland, Indiana 46184

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RICHARD Digitally signed by
RICHARD NEILSON
NEILSON Date: 2021.02.23
14:47:51 -05'00'

RICK NEILSON
State Soil Scientist

Enclosures



Engineer indicated that a total of up to 1.25 acres of permanent ROW would be acquired for lift station and plant--2 locations. The remaining areas on the map are forced mains, etc that would be within existing ROW.

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request				
Name of Project Town of Wheatland Wastewater Improve		Federal Agency Involved				
Proposed Land Use		County and State Knox County, Indiana				
PART II (To be completed by NRCS)		Date Request Received By NRCS 1/27/2021		Person Completing Form: JRA		
Does the site contain Prime, Unique, Statewide or Local Important Farmland? (If no, the FPPA does not apply - do not complete additional parts of this form)		YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	Acres Irrigated	Average Farm Size 627 ac	
Major Crop(s) Corn	Farmable Land In Govt. Jurisdiction Acres: 296184 % 88	Amount of Farmland As Defined in FPPA Acres: 25820 % 77				
Name of Land Evaluation System Used LESA	Name of State or Local Site Assessment System	Date Land Evaluation Returned by NRCS 2/22/2021				
PART III (To be completed by Federal Agency)		Alternative Site Rating				
		Site A	Site B	Site C	Site D	
A. Total Acres To Be Converted Directly						
B. Total Acres To Be Converted Indirectly						
C. Total Acres In Site						
PART IV (To be completed by NRCS) Land Evaluation Information						
A. Total Acres Prime And Unique Farmland		1.25				
B. Total Acres Statewide Important or Local Important Farmland		0.00				
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted		<0.001				
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value		16				
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)		85				
PART VI (To be completed by Federal Agency) Site Assessment Criteria (Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)		Maximum Points	Site A	Site B	Site C	Site D
1. Area In Non-urban Use		(15)	15			
2. Perimeter In Non-urban Use		(10)	8			
3. Percent Of Site Being Farmed		(20)	20			
4. Protection Provided By State and Local Government		(20)	0			
5. Distance From Urban Built-up Area		(15)	0			
6. Distance To Urban Support Services		(15)	0			
7. Size Of Present Farm Unit Compared To Average		(10)	0			
8. Creation Of Non-farmable Farmland		(10)	0			
9. Availability Of Farm Support Services		(5)	0			
10. On-Farm Investments		(20)	2			
11. Effects Of Conversion On Farm Support Services		(10)	0			
12. Compatibility With Existing Agricultural Use		(10)	0			
TOTAL SITE ASSESSMENT POINTS		160	45	0	0	0
PART VII (To be completed by Federal Agency)						
Relative Value Of Farmland (From Part V)		100	85	0	0	0
Total Site Assessment (From Part VI above or local site assessment)		160	45	0	0	0
TOTAL POINTS (Total of above 2 lines)		260	130	0	0	0
Site Selected:	Date Of Selection	Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>				
Reason For Selection:						
Name of Federal agency representative completing this form:					Date:	

(See Instructions on reverse side)

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

- Step 1 - Federal agencies (or Federally funded projects) involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form. For Corridor type projects, the Federal agency shall use form NRCS-CPA-106 in place of form AD-1006. The Land Evaluation and Site Assessment (LESA) process may also be accessed by visiting the FPPA website. <http://fppa.nrcs.usda.gov/lesaf/>
- Step 2 - Originator (Federal Agency) will send one original copy of the form together with appropriate scaled maps indicating location(s) of project site(s), to the Natural Resources Conservation Service (NRCS) local Field Office or USDA Service Center and retain a copy for their files. (NRCS has offices in most counties in the U.S. The USDA Office Information Locator may be found at http://offices.usda.gov/scripts/ndISAPI.dll/oip_public/USA_map, or the offices can usually be found in the Phone Book under U.S. Government, Department of Agriculture. A list of field offices is available from the NRCS State Conservationist and State Office in each State.)
- Step 3 - NRCS will, within 10 working days after receipt of the completed form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland. (When a site visit or land evaluation system design is needed, NRCS will respond within 30 working days.)
- Step 4 - For sites where farmland covered by the FPPA will be converted by the proposed project, NRCS will complete Parts II, IV and V of the form.
- Step 5 - NRCS will return the original copy of the form to the Federal agency involved in the project, and retain a file copy for NRCS records.
- Step 6 - The Federal agency involved in the proposed project will complete Parts VI and VII of the form and return the form with the final selected site to the servicing NRCS office.
- Step 7 - The Federal agency providing financial or technical assistance to the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM (For Federal Agency)

Part I: When completing the "County and State" questions, list all the local governments that are responsible for local land use controls where site(s) are to be evaluated.

Part III: When completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them or other major change in the ability to use the land for agriculture.
2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities planned build out capacity) that will cause a direct conversion.

Part VI: Do not complete Part VI using the standard format if a State or Local site assessment is used. With local and NRCS assistance, use the local Land Evaluation and Site Assessment (LESA).

1. Assign the maximum points for each site assessment criterion as shown in § 658.5(b) of CFR. In cases of corridor-type project such as transportation, power line and flood control, criteria #5 and #6 will not apply and will, be weighted zero, however, criterion #8 will be weighed a maximum of 25 points and criterion #11 a maximum of 25 points.
2. Federal agencies may assign relative weights among the 12 site assessment criteria other than those shown on the FPPA rule after submitting individual agency FPPA policy for review and comment to NRCS. In all cases where other weights are assigned, relative adjustments must be made to maintain the maximum total points at 160. For project sites where the total points equal or exceed 160, consider alternative actions, as appropriate, that could reduce adverse impacts (e.g. Alternative Sites, Modifications or Mitigation).

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, convert the site assessment points to a base of 160.

Example: if the Site Assessment maximum is 200 points, and the alternative Site "A" is rated 180 points:

$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \times 160 = 144 \text{ points for Site A}$

For assistance in completing this form or FPPA process, contact the local NRCS Field Office or USDA Service Center.

NRCS employees, consult the FPPA Manual and/or policy for additional instructions to complete the AD-1006 form.

Organization and Project Information

Project ID:

Des. ID:

Project Title: Town of Wheatland Wastewater Project

Name of Organization: Kleinpeter Consulting Group, LLC

Requested by: Mike Kleinpeter

Environmental Assessment Report

1. Geological Hazards:

- Potential Mine Subsidence ([CMIS](#))
- High liquefaction potential
- 1% Annual Chance Flood Hazard

2. Mineral Resources:

- Bedrock Resource: High Potential
- Sand and Gravel Resource: Low Potential

3. Active or abandoned mineral resources extraction sites:

- Petroleum Exploration Wells
- Underground Coal Mines
- Surface Coal Mines

*All map layers from Indiana Map (maps.indiana.edu)

DISCLAIMER:

This document was compiled by Indiana University, Indiana Geological Survey, using data believed to be accurate; however, a degree of error is inherent in all data. This product is distributed "AS-IS" without warranties of any kind, either expressed or implied, including but not limited to warranties of suitability to a particular purpose or use. No attempt has been made in either the design or production of these data and document to define the limits or jurisdiction of any federal, state, or local government. The data used to assemble this document are intended for use only at the published scale of the source data or smaller (see the metadata links below) and are for reference purposes only. They are not to be construed as a legal document or survey instrument. A detailed on-the-ground survey and historical analysis of a single site may differ from these data and this document.

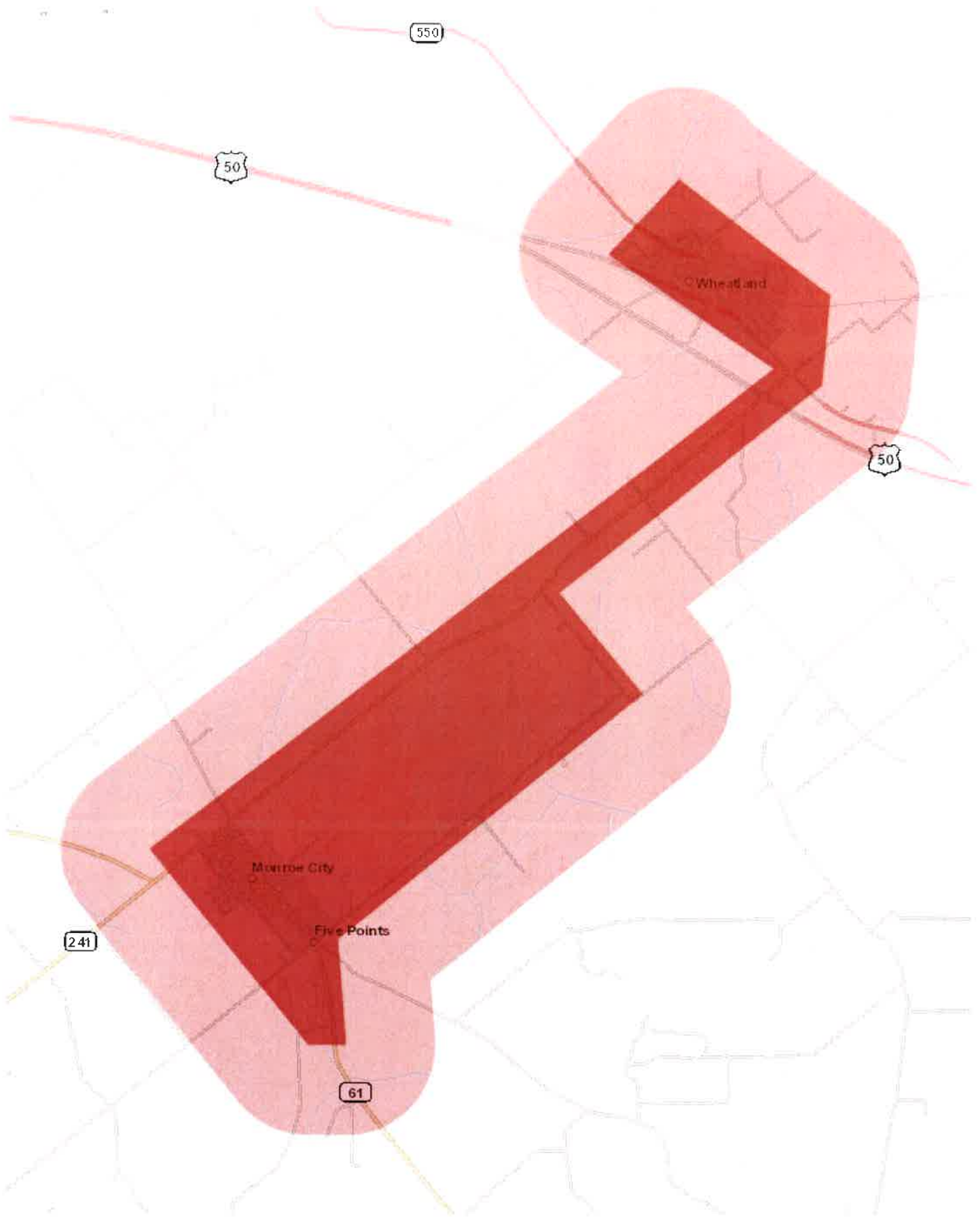
This information was furnished by Indiana Geological Survey

Address: 420 N. Walnut St., Bloomington, IN 47404

Email: IGSEnvir@indiana.edu

Phone: 812 855-7428

Date: February 24, 2021



Metadata:

- https://maps.indiana.edu/metadata/Geology/Petroleum_Wells.html
- https://maps.indiana.edu/metadata/Geology/Coal_Mines_Entries.html
- https://maps.indiana.edu/metadata/Geology/Coal_Mines_Underground.html
- https://maps.indiana.edu/metadata/Geology/Coal_Mines_Surface.html
- https://maps.indiana.edu/metadata/Geology/Seismic_Earthquake_Liquefaction_Potential.html
- https://maps.indiana.edu/metadata/Geology/Industrial_Minerals_Sand_Gravel_Resources.html
- https://maps.indiana.edu/metadata/Hydrology/Floodplains_FIRM.html
- https://maps.indiana.edu/metadata/Geology/Bedrock_Geology.html

Indiana Department of Environmental Management

We Protect Hoosiers and Our Environment.

100 North Senate Avenue - Indianapolis, IN 46204
(800) 451-6027 - (317) 232-8603 - www.idem.IN.gov

Town of Wheatland
Brett Dawson
121 S. State Rte 550
Wheatland , IN 47597
Date

Kleinpeter Consulting Group
Mike Kleinpeter
P.O. Box 37
Whiteland , IN 46184

Dear Grant Administrator or Other Finance Approval Authority:

RE: The Town of Wheatland is applying to Rural Development funding for improvements to their wastewater facility. The improvements are the following: • Installation of approximately 29,000-feet of 8-inch gravity sanitary sewer. • Installation of approximately 100 48-inch diameter sanitary manholes. • The addition of either a 100 gpm, 10 horsepower regional pump station to convey wastewater to Monroe City (if amenable to treating Wheatland's wastewater) or a packaged treatment plant on property to be purchased by the Town. • If the regional pump station alternative is chosen, installation of approximately 31,000-feet of 6-inch force main will be needed as well as several air release valves. • Decommissioning of approximately 184 septic systems.

The Indiana Department of Environmental Management (IDEM) is aware that many local government or not-for-profit entities are seeking grant monies, a bond issuance, or another public funding mechanism to cover some portion of the cost of a public works, infrastructure, or community development project. IDEM also is aware that in order to be eligible for such funding assistance, applicants are required to first evaluate the potential impacts that their particular project may have on the environment. In order to assist applicants seeking such financial assistance and to ensure that such projects do not have an adverse impact on the environment, IDEM has prepared the following list of environmental issues that each applicant must consider in order to minimize environmental impacts in compliance with all relevant state laws.

IDEM recommends that each applicant consider the following issues when moving forward with their project. IDEM also requests that, in addition to submitting the information requested above, each applicant also sign the attached certification, attesting to the fact that they have read the letter in its entirety, agree to abide by the recommendations of the letter, and to apply for any permits required from IDEM for the completion of their project.

IDEM recommends that any person(s) intending to complete a public works, infrastructure, or community development project using any public funding consider each of the following applicable recommendations and requirements:

WATER AND BIOTIC QUALITY

1. Section 404 of the Clean Water Act requires that you obtain a permit from the U.S. Army Corps of Engineers (USACE) before discharging dredged or fill materials into any wetlands or other waters, such as rivers, lakes, streams, and ditches. Other activities regulated include the relocation, channelization, widening, or other such alteration of a stream, and the mechanical clearing (use of heavy construction equipment) of wetlands. Thus, as a project owner or sponsor, it is your responsibility to ensure that no wetlands are

disturbed without the proper permit. Although you may initially refer to the U.S. Fish and Wildlife Service National Wetland Inventory maps as a means of identifying potential areas of concern, please be mindful that those maps do not depict jurisdictional wetlands regulated by the USACE or the Department of Environmental Management. A valid jurisdictional wetlands determination can only be made by the USACE, using the 1987 Wetland Delineation Manual.

USACE recommends that you have a consultant check to determine whether your project will abut, or lie within, a wetland area. To view a list of consultants that have requested to be included on a list posted by the USACE on their Web site, see USACE Permits and Public Notices (<http://www.lrl.usace.army.mil/orf/default.asp>) (<http://www.lrl.usace.army.mil/orf/default.asp>) and then click on "Information" from the menu on the right-hand side of that page. Their "Consultant List" is the fourth entry down on the "Information" page. Please note that the USACE posts all consultants that request to appear on the list, and that inclusion of any particular consultant on the list does not represent an endorsement of that consultant by the USACE, or by IDEM.

Much of northern Indiana (Newton, Lake, Porter, LaPorte, St. Joseph, Elkhart, LaGrange, Steuben, and Dekalb counties; large portions of Jasper, Starke, Marshall, Noble, Allen, and Adams counties; and lesser portions of Benton, White, Pulaski, Kosciusko, and Wells counties) is served by the USACE District Office in Detroit (313-226-6812). The central and southern portions of the state (large portions of Benton, White, Pulaski, Kosciusko, and Wells counties; smaller portions of Jasper, Starke, Marshall, Noble, Allen, and Adams counties; and all other Indiana counties located in north-central, central, and southern Indiana) are served by the USACE Louisville District Office (502-315-6733).

Additional information on contacting these U.S. Army Corps of Engineers (USACE) District Offices, government agencies with jurisdiction over wetlands, and other water quality issues, can be found at <http://www.in.gov/idem/4396.htm> (<http://www.in.gov/idem/4396.htm>). IDEM recommends that impacts to wetlands and other water resources be avoided to the fullest extent.

2. In the event a Section 404 wetlands permit is required from the USACE, you also must obtain a Section 401 Water Quality Certification from the IDEM Office of Water Quality. To learn more about the water quality certification program, visit: <http://www.in.gov/idem/4384.htm> (<http://www.in.gov/idem/4384.htm>).
3. If the USACE determines that a wetland or other body of water is isolated and not subject to Clean Water Act regulation, it is still regulated by the state of Indiana . A state isolated wetland permit from IDEM's Office of Water Quality is required for any activity that results in the discharge of dredged or fill materials into isolated wetlands. To learn more about isolated wetlands, contact the Office of Water Quality at 317-233-8488.
4. If your project will impact more than 0.5 acres of wetland, stream relocation, or other large-scale alterations to bodies of water such as the creation of a dam or a water diversion, you should seek additional input from the Office of Water Quality, Wetlands staff at 317-233-8488.
5. Work within the one-hundred year floodway of a given body of water is regulated by the Department of Natural Resources, Division of Water. Contact this agency at 317-232-4160 for further information.
6. The physical disturbance of the stream and riparian vegetation, especially large trees overhanging any affected water bodies should be limited to only that which is absolutely necessary to complete the project. The shade provided by the large overhanging trees helps maintain proper stream temperatures and dissolved oxygen for aquatic life.

7. For projects involving construction activity (which includes clearing, grading, excavation and other land disturbing activities) that result in the disturbance of one (1), or more, acres of total land area, contact the Office of Water Quality – Watershed Planning Branch (317/233-1864) regarding the need for of a Rule 5 Storm Water Runoff Permit. Visit the following Web page
 - <http://www.in.gov/idem/4902.htm> (<http://www.in.gov/idem/4902.htm>)

To obtain, and operate under, a Rule 5 permit you will first need to develop a Construction Plan (<http://www.in.gov/idem/4917.htm#constreq> (<http://www.in.gov/idem/4917.htm#constreq>)), and as described in 327 IAC 15-5-6.5 (<http://www.in.gov/legislative/iac/T03270/A00150> [PDF] (<http://www.in.gov/legislative/iac/T03270/A00150.PDF>), pages 16 through 19). Before you may apply for a Rule 5 Permit, or begin construction, you must submit your Construction Plan to your county Soil and Water Conservation District (SWCD) (<http://www.in.gov/isda/soil/contacts/map.html> (<http://www.in.gov/isda/soil/contacts/map.html>)).

Upon receipt of the construction plan, personnel of the SWCD or the Indiana Department of Environmental Management will review the plan to determine if it meets the requirements of 327 IAC 15-5. Plans that are deemed deficient will require re-submittal. If the plan is sufficient you will be notified and instructed to submit the verification to IDEM as part of the Rule 5 Notice of Intent (NOI) submittal. Once construction begins, staff of the SWCD or Indiana Department of Environmental Management will perform inspections of activities at the site for compliance with the regulation.

Please be mindful that approximately 149 Municipal Separate Storm Sewer System (MS4) areas are now being established by various local governmental entities throughout the state as part of the implementation of Phase II federal storm water requirements. All of these MS4 areas will eventually take responsibility for Construction Plan review, inspection, and enforcement. As these MS4 areas obtain program approval from IDEM, they will be added to a list of MS4 areas posted on the IDEM Website at: <http://www.in.gov/idem/4900.htm> (<http://www.in.gov/idem/4900.htm>).

If your project is located in an IDEM-approved MS4 area, please contact the local MS4 program about meeting their storm water requirements. Once the MS4 approves the plan, the NOI can be submitted to IDEM.

Regardless of the size of your project, or which agency you work with to meet storm water requirements, IDEM recommends that appropriate structures and techniques be utilized both during the construction phase, and after completion of the project, to minimize the impacts associated with storm water runoff. The use of appropriate planning and site development and appropriate storm water quality measures are recommended to prevent soil from leaving the construction site during active land disturbance and for post construction water quality concerns. Information and assistance regarding storm water related to construction activities are available from the Soil and Water Conservation District (SWCD) offices in each county or from IDEM.

8. For projects involving impacts to fish and botanical resources, contact the Department of Natural Resources - Division of Fish and Wildlife (317-232-4080) for additional project input.
9. For projects involving water main construction, water main extensions, and new public water supplies, contact the Office of Water Quality - Drinking Water Branch (317-308-3299) regarding the need for permits.
10. For projects involving effluent discharges to waters of the State of Indiana , contact the Office of Water Quality - Permits Branch (317-233-0468) regarding the need for a National Pollutant Discharge Elimination System (NPDES) permit.

11. For projects involving the construction of wastewater facilities and sewer lines, contact the Office of Water Quality - Permits Branch (317-232-8675) regarding the need for permits.

AIR QUALITY

The above-noted project (see page 1) should be designed to minimize any impact on ambient air quality in, or near, the project area. The project must comply with all federal and state air pollution regulations. Consideration should be given to the following:

1. Regarding open burning, and disposing of organic debris generated by land clearing activities; some types of open burning are allowed under specific conditions (<http://www.in.gov/idem/4148.htm> (<http://www.in.gov/idem/4148.htm>)). You also can seek an open burning variance from IDEM.

IDEM generally recommends that you take vegetative wastes to a registered yard waste composting facility or that the waste be chipped or shredded with composting on-site. You must register with IDEM if more than 2,000 pounds is to be composted; contact 317-232-0066). The finished compost can then be used as a mulch or soil amendment. You also may bury any vegetative wastes (such as leaves, twigs, branches, limbs, tree trunks and stumps) on-site, although burying large quantities of such material can lead to subsidence problems.

2. Reasonable precautions must be taken to minimize fugitive dust emissions from construction and demolition activities. For example, wetting the area with water, constructing wind barriers, or treating dusty areas with chemical stabilizers (such as calcium chloride or several other commercial products). Dirt tracked onto paved roads from unpaved areas should be minimized.

If construction or demolition is conducted in a wooded area where blackbirds have roosted or abandoned buildings or building sections in which pigeons or bats have roosted for three to five years, precautionary measures should be taken to avoid an outbreak of histoplasmosis. This disease is caused by the fungus *Histoplasma capsulatum*, which stems from bird or bat droppings that have accumulated in one area for three to five years. The spores from this fungus become airborne when the area is disturbed and can cause infections over an entire community downwind of the site. The area should be wetted down prior to cleanup or demolition of the project site. For more detailed information on histoplasmosis prevention and control, please contact the Acute Disease Control Division of the Indiana State Department of Health at 317-233-7272.

3. The U.S. EPA and the U.S. Surgeon General recommend that people not have long-term exposure to radon at levels above 4 pCi/L. For a county-by-county map of predicted radon levels in Indiana, visit <http://www.in.gov/idem/4267.htm> (<http://www.in.gov/idem/4267.htm>).

The U.S. EPA further recommends that all homes and apartments (within three stories of ground level) be tested for radon. If in-home radon levels are determined to be 4 pCi/L or higher, then U.S. EPA recommends a follow-up test. If the second test confirms that radon levels are 4 pCi/L or higher, then U.S. EPA recommends the installation of radon-reduction measures. For a list of qualified radon testers and radon mitigation (or reduction) specialists, visit http://www.in.gov/isdh/regsvcs/radhealth/pdfs/radon_testers_mitigators_list.pdf

(http://www.in.gov/isdh/regsvcs/radhealth/pdfs/radon_testers_mitigators_list.pdf). Also, it is recommended that radon reduction measures be built into all new homes, particularly in areas like Indiana that have moderate to high predicted radon levels.

To learn more about radon, radon risks, and ways to reduce exposure, visit <http://www.in.gov/isdh/regsvcs/radhealth/radon.htm> (<http://www.in.gov/isdh/regsvcs/radhealth/radon.htm>),

<http://www.in.gov/idem/4145.htm> (<http://www.in.gov/idem/4145.htm>), or <http://www.epa.gov/radon/index.html> (<http://www.epa.gov/radon/index.html>).

4. With respect to asbestos removal, all facilities slated for renovation or demolition (except residential buildings that have four (4) or fewer dwelling units and which will not be used for commercial purposes) must be inspected by an Indiana-licensed asbestos inspector prior to the commencement of any renovation or demolition activities. If regulated asbestos-containing material (RACM) that may become airborne is found, any subsequent demolition, renovation, or asbestos removal activities must be performed in accordance with the proper notification and emission control requirements.

If no asbestos is found where a renovation activity will occur, or if the renovation involves removal of less than 260 linear feet of RACM off of pipes, less than 160 square feet of RACM off of other facility components, or less than 35 cubic feet of RACM off of all facility components, the owner or operator of the project does not need to notify IDEM before beginning the renovation activity.

For questions on asbestos demolition and renovation activities, you can also call IDEM's Lead/Asbestos section at 1-888-574-8150.

In all cases where a demolition activity will occur (even if no asbestos is found), the owner or operator must still notify IDEM 10 working days prior to the demolition, using the form found at www.in.gov/icpr/webfile/formsdiv/44593.pdf.

Anyone submitting a renovation/demolition notification form will be billed a notification fee based upon the amount of friable asbestos containing material to be removed or demolished. Projects that involve the removal of more than 2,600 linear feet of friable asbestos containing materials on pipes, or 1,600 square feet or 400 cubic feet of friable asbestos containing material on other facility components, will be billed a fee of \$150 per project; projects below these amounts will be billed a fee of \$50 per project. Billings will occur on a quarterly basis.

For more information about IDEM policy regarding asbestos removal and disposal, visit: <http://www.in.gov/idem/4983.htm> (<http://www.in.gov/idem/4983.htm>).

5. With respect to lead-based paint removal, IDEM encourages all efforts to minimize human exposure to lead-based paint chips and dust. IDEM is particularly concerned that young children exposed to lead can suffer from learning disabilities. Although lead-based paint abatement efforts are not mandatory, any abatement that is conducted within housing built before January 1, 1978, or a child-occupied facility is required to comply with all lead-based paint work practice standards, licensing and notification requirements. For more information about lead-based paint removal, visit <http://www.in.gov/idem/permits/guide/waste/leadabatement.html> (<http://www.in.gov/idem/permits/guide/waste/leadabatement.html>).
6. Ensure that asphalt paving plants are permitted and operate properly. The use of cutback asphalt, or asphalt emulsion containing more than seven percent (7%) oil distillate, is prohibited during the months of April through October. See 326 IAC 8-5-2, Asphalt Paving Rule (<http://www.ai.org/legislative/iac/T03260/A00080.PDF> (<http://www.ai.org/legislative/iac/T03260/A00080.PDF>)).
7. If your project involves the construction of a new source of air emissions or the modification of an existing source of air emissions or air pollution control equipment, it will need to be reviewed by the IDEM Office of Air Quality (OAQ). A registration or permit may be required under 326 IAC 2 (www.ai.org/legislative/iac/t03260/a00020.pdf (<http://www.ai.org/legislative/iac/t03260/a00020.pdf>)). New

sources that use or emit hazardous air pollutants may be subject to Section 112 of the Clean Air Act and corresponding state air regulations governing hazardous air pollutants.

8. For more information on air permits, visit <http://www.in.gov/idem/4223.htm> (<http://www.in.gov/idem/4223.htm>), or to initiate the IDEM air permitting process, please contact the Office of Air Quality Permit Reviewer of the Day at (317) 233-0178 or oamprod at idem.in.gov.

LAND QUALITY

In order to maintain compliance with all applicable laws regarding contamination and/or proper waste disposal, IDEM recommends that:

1. If the site is found to contain any areas used to dispose of solid or hazardous waste, you need to contact the Office of Land Quality (OLQ) at 317-308-3103.
2. All solid wastes generated by the project, or removed from the project site, need to be taken to a properly permitted solid waste processing or disposal facility. For more information, visit <http://www.in.gov/idem/4998.htm> (<http://www.in.gov/idem/4998.htm>).
3. If any contaminated soils are discovered during this project, they may be subject to disposal as hazardous waste. Please contact the OLQ at 317-308-3103 to obtain information on proper disposal procedures.
4. If Polychlorinated Biphenyls (PCBs) are found at this site, please contact the Industrial Waste Section of OLQ at 317-308-3103 for information regarding management of any PCB wastes from this site.
5. If there are any asbestos disposal issues related to this site, please contact the Industrial Waste Section of OLQ at 317-308-3103 for information regarding the management of asbestos wastes. (Asbestos removal is addressed above, under Air Quality.)
6. If the project involves the installation or removal of an underground storage tank, or involves contamination from an underground storage tank, you must contact the IDEM Underground Storage Tank program at 317-308-3039(<http://www.in.gov/idem/4999.htm> (<http://www.in.gov/idem/4999.htm>)).

FINAL REMARKS

Should the applicant need to obtain any environmental permits in association with this proposed project, please be mindful that IC 13-15-8 requires that they notify all adjoining property owners and/or occupants within ten days of your submittal of each permit application. Applicants seeking multiple permits, may still meet the notification requirement with a single notice if all required permit applications are submitted with the same ten day period.

Please note that this letter does not constitute a permit, license, endorsement, or any other form of approval on the part of either the Indiana Department of Environmental Management or any other Indiana state agency.

Should you have any questions relating to the content or recommendations of this letter, or if you have additional questions about whether a more complete environmental review of your project should be conducted, please feel free to contact Steve Howell at (317) 232-8587, snhowell@idem.in.gov.

Signature(s) of the Applicant

I acknowledge that I am seeking grant monies, a bond issuance, or other public funding mechanism to cover some portion of the cost of the public works, infrastructure, or community development project as described herein, which I am working (possibly with others) to complete.

Project Description

The Town of Wheatland is applying to Rural Development funding for improvements to their wastewater facility. The improvements are the following:

- Installation of approximately 29,000-feet of 8-inch gravity sanitary sewer.
- Installation of approximately 100 48-inch diameter sanitary manholes.
- The addition of either a 100 gpm, 10 horsepower regional pump station to convey wastewater to Monroe City (if amenable to treating Wheatland's wastewater) or a packaged treatment plant on property to be purchased by the Town.
- If the regional pump station alternative is chosen, installation of approximately 31,000-feet of 6-inch force main will be needed as well as several air release valves.
- Decommissioning of approximately 184 septic systems.

With my signature, I do hereby affirm that I have read the letter from the Indiana Department of Environmental Management that appears directly above. In addition, I understand that in order to complete the project in which I am interested, with a minimum impact to the environment, I must consider all the issues addressed in the aforementioned letter, and further, that I must obtain any required permits.

Dated Signature of the Public Owner

Contact/Responsible Elected Official _____

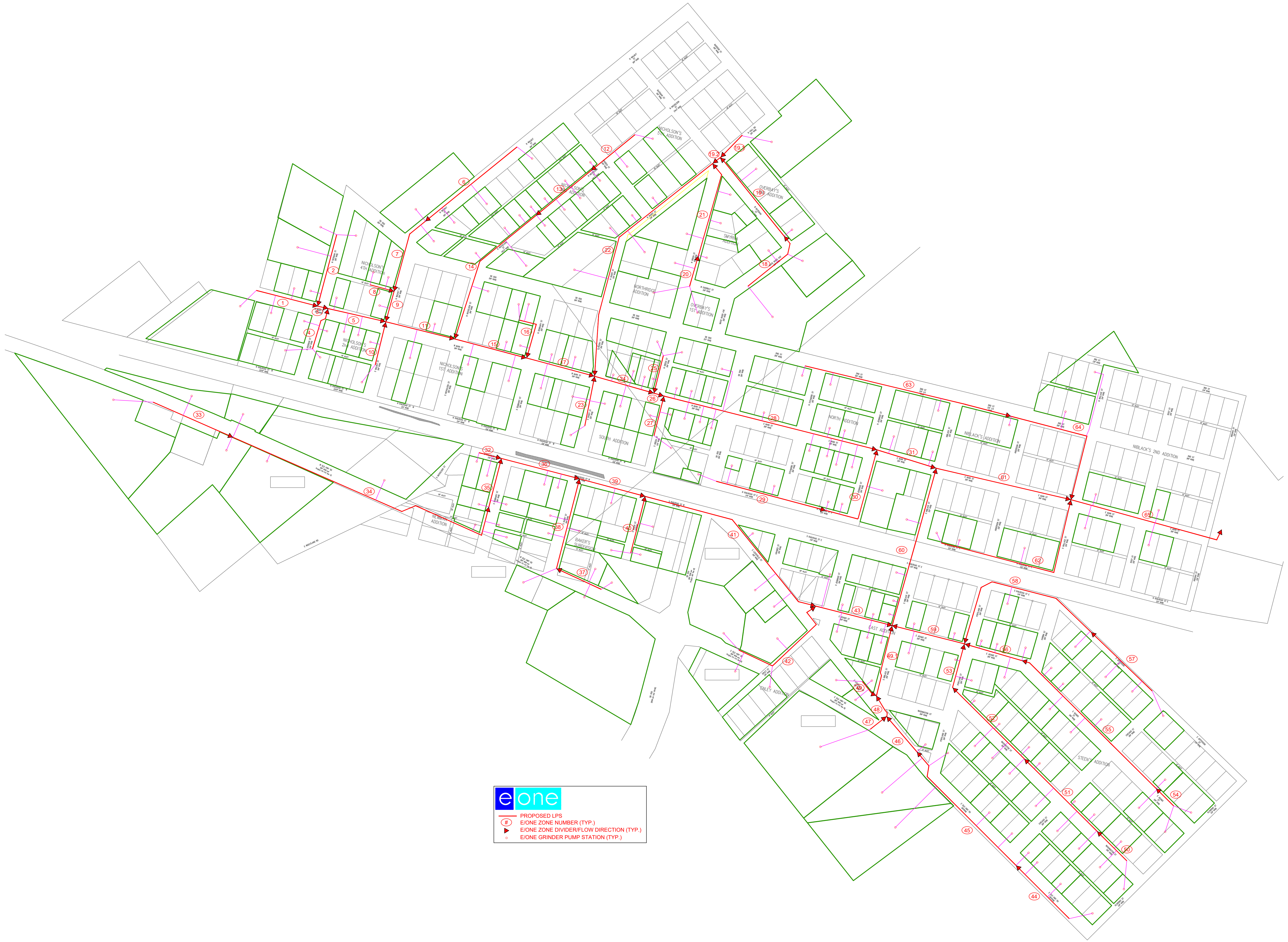
Brett Dawson

Dated Signature of the Project

Planner/Consultant Contact Person _____

Mike Kleinpeter

APPENDIX C:
ENVIRONMENTAL ONE
CORPORATION –
PRESSURE SEWER
PRELIMINARY COST AND
DESIGN ANALYSIS FOR
WHEATLAND, IN



eone

- PROPOSED LPS
- ① E/ONE ZONE NUMBER (TYP.)
- ▶ E/ONE ZONE DIVIDER/FLOW DIRECTION (TYP.)
- E/ONE GRINDER PUMP STATION (TYP.)



Environment One Corporation

**Pressure Sewer Preliminary
Cost and Design Analysis**

For

Wheatland, IN

Rev4

Prepared For:

RQAW

703 Michigan Ave

La Porte

IN

46350

USA

Tel: 219-380-5902

Fax:

Prepared By: M. Crowley

August 18, 2023

Wheatland, IN
Rev4

Prepared by : M. Crowley

On: August 18, 2023

Notes :

Analysis based upon drawings and data provided. Station recommendations are preliminary.

GPD values impact retention times only, not line sizing or hydraulics. GP laterals to be 1.25".

Analysis valid only with pipe type listed.

General recommendations for valve placement are: clean out valves at intervals of approximately 1,000 ft and at branch ends and junctions; isolation valves at branch junctions; and air release valves at peaks of 25 ft or more and/or at intervals of 2,000 to 2,500 ft. Lateral kits comprised of a ball and check valve are required to be installed between the pump discharge and street main on all installations. Laterals should be located as close to the public right of way as possible.

Quantities of grinder pumps, pipe, and valves are indicated on the cost page. The model of grinder pump(s) indicated is based upon the initial information provided to us but may not be the most appropriate for the specific location or requirements of the project. Costs of these items and their installation are best obtained from sources in your region. We recommend you contact your local distributor of Environment One products for additional recommendations.

11.13.2020 - Initial analysis.

06.14.2023 - Rev1.

07.25.2023 - Rev2 w/layout per the engineer. Station and valve quantities approximate.

08.14.2023 - Rev3 w/reroutes. Pipe type changed to SDR11 HDPE. Piping resized as necessary.

08.18.2023 - Rev4 w/reroutes. Updated GPD to 175 per request.

<<<<< **END OF NOTES** >>>>>

PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS

Wheatland, IN

Rev4

August 18, 2023

Prepared By:
M. Crowley

Zone Number	Connects to Zone	Number of Pumps in Zone	Accum Pumps in Zone	Gals/day per Pump	Max Flow Per Pump (gpm)	Max Sim Ops	Max Flow (GPM)	Pipe Size (inches)	Max Velocity (FPS)	Length of Main this Zone	Friction Loss Factor (ft/100 ft)	Friction Loss This Zone	Accum Fric Loss (feet)	Max Main Elevation	Minimum Pump Elevation	Static Head (feet)	Total Dynamic Head (ft)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE Friction loss calculations were based on a Constant for inside roughness "C" of: 120																	
1.00	3.00	3	3	175	11.00	2	22.00	2.00	2.38	264.00	1.80	4.75	64.24	507.00	488.00	19.00	83.24
2.00	3.00	4	4	175	11.00	3	33.00	2.00	3.57	309.00	3.81	11.77	71.26	507.00	492.00	15.00	86.26
3.00	5.00	0	7	175	11.00	3	33.00	2.00	3.57	45.00	3.81	1.71	59.49	507.00	493.00	14.00	73.49
4.00	5.00	4	4	175	11.00	3	33.00	2.00	3.57	187.00	3.81	7.12	64.90	507.00	489.00	18.00	82.90
5.00	11.00	3	14	175	11.00	4	44.00	3.00	2.19	247.00	0.98	2.43	57.78	507.00	491.00	16.00	73.78
6.00	7.00	3	3	175	11.00	2	22.00	2.00	2.38	491.00	1.80	8.83	81.93	507.00	498.00	9.00	90.93
7.00	9.00	2	5	175	11.00	3	33.00	2.00	3.57	335.00	3.81	12.76	73.10	507.00	496.00	11.00	84.10
8.00	9.00	2	2	175	11.00	2	22.00	2.00	2.38	105.00	1.80	1.89	62.23	507.00	493.00	14.00	76.23
9.00	11.00	1	8	175	11.00	3	33.00	2.00	3.57	131.00	3.81	4.99	60.34	507.00	492.00	15.00	75.34
10.00	11.00	2	2	175	11.00	2	22.00	2.00	2.38	186.00	1.80	3.34	58.69	507.00	490.00	17.00	75.69
11.00	15.00	2	26	175	11.00	5	55.00	3.00	2.74	297.00	1.49	4.41	55.35	507.00	491.00	16.00	71.35
12.00	13.00	3	3	175	11.00	2	22.00	2.00	2.38	234.00	1.80	4.21	72.80	508.00	506.00	2.00	74.80
13.00	14.00	6	9	175	11.00	3	33.00	2.00	3.57	297.00	3.81	11.31	68.59	507.00	505.00	2.00	70.59
14.00	15.00	6	15	175	11.00	4	44.00	3.00	2.19	645.00	0.98	6.34	57.28	507.00	497.00	10.00	67.28
15.00	17.00	3	44	175	11.00	6	66.00	3.00	3.29	310.00	2.08	6.45	50.94	507.00	494.00	13.00	63.94
16.00	17.00	3	3	175	11.00	2	22.00	2.00	2.38	219.00	1.80	3.94	48.43	507.00	499.00	8.00	56.43
17.00	24.00	3	50	175	11.00	6	66.00	3.00	3.29	292.00	2.08	6.08	44.49	507.00	497.00	10.00	54.49
18.00	19.00	3	3	175	11.00	2	22.00	2.00	2.38	296.00	1.80	5.32	72.13	517.00	514.00	3.00	75.13
19.00	19.20	2	5	175	11.00	3	33.00	2.00	3.57	427.00	3.81	16.26	66.81	510.00	508.00	2.00	68.81
19.10	19.20	1	1	175	11.00	1	11.00	1.25	2.44	135.00	2.85	3.84	54.39	510.00	508.00	2.00	56.39
19.20	22.00	0	6	175	11.00	3	33.00	2.00	3.57	38.00	3.81	1.45	50.55	510.00	508.00	2.00	52.55
20.00	21.00	3	3	175	11.00	2	22.00	2.00	2.38	130.00	1.80	2.34	67.17	516.00	516.00	0.00	67.17
21.00	22.00	4	7	175	11.00	3	33.00	2.00	3.57	413.00	3.81	15.73	64.83	510.00	510.00	0.00	64.83
22.00	24.00	5	18	175	11.00	4	44.00	3.00	2.19	1,088.00	0.98	10.69	49.10	510.00	507.00	3.00	52.10
23.00	24.00	3	3	175	11.00	2	22.00	2.00	2.38	211.00	1.80	3.79	42.20	507.00	496.00	11.00	53.20
24.00	26.00	4	75	175	11.00	7	77.00	4.00	2.32	259.00	0.82	2.11	38.41	507.00	503.00	4.00	42.41
25.00	26.00	3	3	175	11.00	2	22.00	2.00	2.38	162.00	1.80	2.91	39.21	508.00	508.00	0.00	39.21
26.00	28.00	0	78	175	11.00	7	77.00	4.00	2.32	44.00	0.82	0.36	36.30	506.00	506.00	0.00	36.30
27.00	28.00	3	3	175	11.00	2	22.00	2.00	2.38	171.00	1.80	3.07	39.01	506.00	497.00	9.00	48.01
28.00	31.00	14	95	175	11.00	8	88.00	4.00	2.65	917.00	1.04	9.58	35.94	494.00	494.00	0.00	35.94
29.00	30.00	3	3	175	11.00	2	22.00	2.00	2.38	470.00	1.80	8.45	51.57	493.00	492.00	1.00	52.57
30.00	31.00	3	6	175	11.00	3	33.00	2.00	3.57	440.00	3.81	16.76	43.12	493.00	491.00	2.00	45.12
31.00	61.00	2	103	175	11.00	8	88.00	4.00	2.65	257.00	1.04	2.68	26.36	489.00	489.00	0.00	26.36
32.00	36.00	3	3	175	11.00	2	22.00	2.00	2.38	95.00	1.80	1.71	60.09	492.00	490.00	2.00	62.09
33.00	34.00	3	3	175	11.00	2	22.00	2.00	2.38	362.00	1.80	6.51	114.81	492.00	485.00	7.00	121.81

PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS

Wheatland, IN

Rev4

August 18, 2023

Prepared By:

M. Crowley

Zone Number	Connects to Zone	Number of Pumps in Zone	Accum Pumps in Zone	Gals/day per Pump	Max Flow Per Pump (gpm)	Max Sim Ops	Max Flow (GPM)	Pipe Size (inches)	Max Velocity (FPS)	Length of Main this Zone	Friction Loss Factor (ft/100 ft)	Friction Loss This Zone	Accum Fric Loss (feet)	Max Main Elevation	Minimum Pump Elevation	Static Head (feet)	Total Dynamic Head (ft)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE																	
Friction loss calculations were based on a Constant for inside roughness "C" of: 120																	
34.00	35.00	6	9	175	11.00	3	33.00	2.00	3.57	1,256.00	3.81	47.84	108.30	492.00	482.00	10.00	118.30
35.00	36.00	2	11	175	11.00	4	44.00	3.00	2.19	212.00	0.98	2.08	60.46	492.00	489.00	3.00	63.46
36.00	39.00	2	16	175	11.00	4	44.00	3.00	2.19	337.00	0.98	3.31	58.38	492.00	491.00	1.00	59.38
37.00	38.00	3	3	175	11.00	2	22.00	2.00	2.38	206.00	1.80	3.70	73.51	492.00	484.00	8.00	81.51
38.00	39.00	4	7	175	11.00	3	33.00	2.00	3.57	387.00	3.81	14.74	69.81	492.00	486.00	6.00	75.81
39.00	41.00	1	24	175	11.00	5	55.00	3.00	2.74	284.00	1.49	4.22	55.07	491.00	489.00	2.00	57.07
40.00	41.00	3	3	175	11.00	2	22.00	2.00	2.38	245.00	1.80	4.40	55.25	490.00	485.00	5.00	60.25
41.00	43.00	3	30	175	11.00	5	55.00	3.00	2.74	892.00	1.49	13.25	50.85	490.00	485.00	5.00	55.85
42.00	43.00	4	4	175	11.00	3	33.00	2.00	3.57	518.00	3.81	19.73	57.33	490.00	480.00	10.00	67.33
43.00	60.00	6	40	175	11.00	6	66.00	3.00	3.29	326.00	2.08	6.79	37.60	490.00	484.00	6.00	43.60
44.00	45.00	3	3	175	11.00	2	22.00	2.00	2.38	312.00	1.80	5.61	66.94	490.00	482.00	8.00	74.94
45.00	46.00	6	9	175	11.00	3	33.00	2.00	3.57	647.00	3.81	24.64	61.33	490.00	478.00	12.00	73.33
46.00	48.00	1	10	175	11.00	4	44.00	3.00	2.19	194.00	0.98	1.91	36.69	490.00	478.00	12.00	48.69
47.00	48.00	1	1	175	11.00	1	11.00	1.25	2.44	88.00	2.85	2.50	37.28	490.00	478.00	12.00	49.28
48.00	49.10	0	11	175	11.00	4	44.00	3.00	2.19	100.00	0.98	0.98	34.78	490.00	479.00	11.00	45.78
49.00	49.10	3	3	175	11.00	2	22.00	2.00	2.38	87.00	1.80	1.56	35.36	490.00	480.00	10.00	45.36
49.10	60.00	0	14	175	11.00	4	44.00	3.00	2.19	304.00	0.98	2.99	33.80	490.00	480.00	10.00	43.80
50.00	51.00	3	3	175	11.00	2	22.00	2.00	2.38	172.00	1.80	3.09	62.72	490.00	482.00	8.00	70.72
51.00	52.00	6	9	175	11.00	3	33.00	2.00	3.57	429.00	3.81	16.34	59.63	490.00	479.00	11.00	70.63
52.00	53.00	6	15	175	11.00	4	44.00	3.00	2.19	425.00	0.98	4.18	43.29	490.00	479.00	11.00	54.29
53.00	59.00	2	17	175	11.00	4	44.00	3.00	2.19	190.00	0.98	1.87	39.11	490.00	483.00	7.00	46.11
54.00	55.00	3	3	175	11.00	2	22.00	2.00	2.38	101.00	1.80	1.82	71.13	490.00	480.00	10.00	81.13
55.00	56.00	6	9	175	11.00	3	33.00	2.00	3.57	777.00	3.81	29.59	69.31	490.00	480.00	10.00	79.31
56.00	59.00	4	13	175	11.00	4	44.00	3.00	2.19	252.00	0.98	2.48	39.72	490.00	483.00	7.00	46.72
57.00	58.00	3	3	175	11.00	2	22.00	2.00	2.38	352.00	1.80	6.33	73.24	490.00	481.00	9.00	82.24
58.00	59.00	2	5	175	11.00	3	33.00	2.00	3.57	779.00	3.81	29.67	66.91	490.00	483.00	7.00	73.91
59.00	60.00	3	38	175	11.00	6	66.00	3.00	3.29	309.00	2.08	6.43	37.24	490.00	484.00	6.00	43.24
60.00	61.00	4	96	175	11.00	8	88.00	4.00	2.65	683.00	1.04	7.13	30.81	490.00	485.00	5.00	35.81
61.00	65.00	0	199	175	11.00	11	121.00	4.00	3.65	578.00	1.88	10.89	23.68	488.00	488.00	0.00	23.68
62.00	65.00	3	3	175	11.00	2	22.00	2.00	2.38	798.00	1.80	14.34	27.13	486.00	486.00	0.00	27.13
63.00	64.00	3	3	175	11.00	2	22.00	2.00	2.38	883.00	1.80	15.87	51.66	491.00	491.00	0.00	51.66
64.00	65.00	3	6	175	11.00	3	33.00	2.00	3.57	604.00	3.81	23.00	35.79	484.00	484.00	0.00	35.79
65.00	65.00	4	212	175	11.00	11	121.00	4.00	3.65	679.00	1.88	12.79	12.79	481.00	481.00	0.00	12.79

PRELIMINARY PRESSURE SEWER- ACCUMULATED RETENTION TIME(HR)

Wheatland, IN

Rev4

August 18, 2023

Prepared By:
M. Crowley

Zone Number	Connects to Zone	Accumulated Total of Pumps this Zone	Pipe Size (inches)	Gallons per 100 lineal feet	Length of Zone	Capacity of Zone	Average Daily Flow	Average Fluid Changes per Day	Average Retention Time (Hr)	Accumulated Retention Time (Hr)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE							Gals per Day per Dwelling			175
1.00	3.00	3	2.00	15.40	264.00	40.66	525	12.91	1.86	5.61
2.00	3.00	4	2.00	15.40	309.00	47.59	700	14.71	1.63	5.38
3.00	5.00	7	2.00	15.40	45.00	6.93	1,225	176.73	0.14	3.75
4.00	5.00	4	2.00	15.40	187.00	28.80	700	24.30	0.99	4.60
5.00	11.00	14	3.00	33.47	247.00	82.66	2,450	29.64	0.81	3.61
6.00	7.00	3	2.00	15.40	491.00	75.63	525	6.94	3.46	8.02
7.00	9.00	5	2.00	15.40	335.00	51.60	875	16.96	1.42	4.57
8.00	9.00	2	2.00	15.40	105.00	16.17	350	21.64	1.11	4.26
9.00	11.00	8	2.00	15.40	131.00	20.18	1,400	69.38	0.35	3.15
10.00	11.00	2	2.00	15.40	186.00	28.65	350	12.22	1.96	4.77
11.00	15.00	26	3.00	33.47	297.00	99.40	4,550	45.78	0.52	2.81
12.00	13.00	3	2.00	15.40	234.00	36.04	525	14.57	1.65	6.60
13.00	14.00	9	2.00	15.40	297.00	45.75	1,575	34.43	0.70	4.95
14.00	15.00	15	3.00	33.47	645.00	215.86	2,625	12.16	1.97	4.25
15.00	17.00	44	3.00	33.47	310.00	103.75	7,700	74.22	0.32	2.28
16.00	17.00	3	2.00	15.40	219.00	33.73	525	15.56	1.54	3.50
17.00	24.00	50	3.00	33.47	292.00	97.72	8,750	89.54	0.27	1.96
18.00	19.00	3	2.00	15.40	296.00	45.59	525	11.52	2.08	8.49
19.00	19.20	5	2.00	15.40	427.00	65.77	875	13.30	1.80	6.40
19.10	19.20	1	1.25	7.52	135.00	10.16	175	17.23	1.39	5.99
19.20	22.00	6	2.00	15.40	38.00	5.85	1,050	179.39	0.13	4.60
20.00	21.00	3	2.00	15.40	130.00	20.02	525	26.22	0.92	6.63
21.00	22.00	7	2.00	15.40	413.00	63.61	1,225	19.26	1.25	5.71
22.00	24.00	18	3.00	33.47	1,088.00	364.12	3,150	8.65	2.77	4.46
23.00	24.00	3	2.00	15.40	211.00	32.50	525	16.15	1.49	3.18
24.00	26.00	75	4.00	55.31	259.00	143.26	13,125	91.62	0.26	1.69
25.00	26.00	3	2.00	15.40	162.00	24.95	525	21.04	1.14	2.57
26.00	28.00	78	4.00	55.31	44.00	24.34	13,650	560.86	0.04	1.43
27.00	28.00	3	2.00	15.40	171.00	26.34	525	19.93	1.20	2.59
28.00	31.00	95	4.00	55.31	917.00	507.22	16,625	32.78	0.73	1.38
29.00	30.00	3	2.00	15.40	470.00	72.39	525	7.25	3.31	5.51
30.00	31.00	6	2.00	15.40	440.00	67.77	1,050	15.49	1.55	2.20
31.00	61.00	103	4.00	55.31	257.00	142.15	18,025	126.80	0.19	0.65
32.00	36.00	3	2.00	15.40	95.00	14.63	525	35.88	0.67	4.92
33.00	34.00	3	2.00	15.40	362.00	55.76	525	9.42	2.55	10.63

PRELIMINARY PRESSURE SEWER - ACCUMULATED RETENTION TIME(HR)

Wheatland, IN

Rev4

August 18, 2023

Prepared By:
M. Crowley

Zone Number	Connects to Zone	Accumulated Total of Pumps this Zone	Pipe Size (inches)	Gallons per 100 lineal feet	Length of Zone	Capacity of Zone	Average Daily Flow	Average Fluid Changes per Day	Average Retention Time (Hr)	Accumulated Retention Time (Hr)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE							Gals per Day per Dwelling			175
34.00	35.00	9	2.00	15.40	1,256.00	193.46	1,575	8.14	2.95	8.08
35.00	36.00	11	3.00	33.47	212.00	70.95	1,925	27.13	0.88	5.14
36.00	39.00	16	3.00	33.47	337.00	112.78	2,800	24.83	0.97	4.25
37.00	38.00	3	2.00	15.40	206.00	31.73	525	16.55	1.45	5.90
38.00	39.00	7	2.00	15.40	387.00	59.61	1,225	20.55	1.17	4.45
39.00	41.00	24	3.00	33.47	284.00	95.04	4,200	44.19	0.54	3.28
40.00	41.00	3	2.00	15.40	245.00	37.74	525	13.91	1.73	4.47
41.00	43.00	30	3.00	33.47	892.00	298.52	5,250	17.59	1.36	2.74
42.00	43.00	4	2.00	15.40	518.00	79.79	700	8.77	2.74	4.11
43.00	60.00	40	3.00	33.47	326.00	109.10	7,000	64.16	0.37	1.38
44.00	45.00	3	2.00	15.40	312.00	48.06	525	10.92	2.20	7.02
45.00	46.00	9	2.00	15.40	647.00	99.66	1,575	15.80	1.52	4.83
46.00	48.00	10	3.00	33.47	194.00	64.92	1,750	26.95	0.89	3.31
47.00	48.00	1	1.25	7.52	88.00	6.62	175	26.43	0.91	3.32
48.00	49.10	11	3.00	33.47	100.00	33.47	1,925	57.52	0.42	2.42
49.00	49.10	3	2.00	15.40	87.00	13.40	525	39.18	0.61	2.61
49.10	60.00	14	3.00	33.47	304.00	101.74	2,450	24.08	1.00	2.00
50.00	51.00	3	2.00	15.40	172.00	26.49	525	19.82	1.21	5.41
51.00	52.00	9	2.00	15.40	429.00	66.08	1,575	23.84	1.01	4.20
52.00	53.00	15	3.00	33.47	425.00	142.23	2,625	18.46	1.30	3.19
53.00	59.00	17	3.00	33.47	190.00	63.59	2,975	46.79	0.51	1.89
54.00	55.00	3	2.00	15.40	101.00	15.56	525	33.75	0.71	4.80
55.00	56.00	9	2.00	15.40	777.00	119.68	1,575	13.16	1.82	4.09
56.00	59.00	13	3.00	33.47	252.00	84.34	2,275	26.98	0.89	2.27
57.00	58.00	3	2.00	15.40	352.00	54.22	525	9.68	2.48	7.15
58.00	59.00	5	2.00	15.40	779.00	119.99	875	7.29	3.29	4.67
59.00	60.00	38	3.00	33.47	309.00	103.41	6,650	64.31	0.37	1.38
60.00	61.00	96	4.00	55.31	683.00	377.79	16,800	44.47	0.54	1.00
61.00	65.00	199	4.00	55.31	578.00	319.71	34,825	108.93	0.22	0.46
62.00	65.00	3	2.00	15.40	798.00	122.91	525	4.27	5.62	5.86
63.00	64.00	3	2.00	15.40	883.00	136.01	525	3.86	6.22	8.59
64.00	65.00	6	2.00	15.40	604.00	93.03	1,050	11.29	2.13	2.37
65.00	65.00	212	4.00	55.31	679.00	375.58	37,100	98.78	0.24	0.24