

PROJECT MANUAL
For
VILLAGE OF ASHVILLE, OHIO
SANITARY SEWER IMPROVEMENTS
2016
(PART B)

All inquiries and correspondence to Engineer shall be directed to:

AECOM
Attn: Matthew S. Noelker, P.E.

September 1, 2016
Project No. 60440011

AECOM

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SECTION 00 1113

ADVERTISEMENT FOR BIDS

The Village of Ashville, Ohio will receive sealed bids for:

Village of Ashville, Ohio Sanitary Sewer Improvements 2016 (Part B)

Description of Project: The project consists of a 24-inch gravity outfall sewer and a 10-inch forcemain. The outfall sewer will be constructed from the site of a new WRRF to the Village's existing wastewater treatment plant outfall. The forcemain will be constructed from a pump station at the Village's existing wastewater treatment plant to the new WRRF. Also included are 18-inch and 24-inch gravity influent sewers, storm sewer relocation, and all associated improvements as shown on the plans and specified in the bid documents.

Bidding Documents may be examined at the following locations:

Engineer's Office:
AECOM (formerly URS)
277 W. Nationwide Blvd.
Columbus, OH 43215
(614) 464-4500

Owner's Office:
Village of Ashville
Village Administration Building
200 East Station Street
Ashville, OH 43103
(740) 983-6367

Builder's Exchange Plan Room:
1175 Dublin Road
Columbus, OH 43215

Bidding documents may be obtained from ARC/Columbus, 1159 Dublin Road Suite 300, Columbus, OH 43215, (614) 224-5149, at a non-refundable cost of:

- | | |
|---|-----------|
| 1. Hard copy full size Plans/Specifications | \$ 105.00 |
| 2. Hard copy half size Plans/Specifications | \$ 80.00 |
| 3. CD | \$ 52.50 |

Bidding documents may also be viewed at the on-line public plan room at:

<http://www.e-arc.com/oh/columbus>

A Pre-Bid Conference is scheduled for Tuesday October 4, 2016 at 10 A.M. The meeting will be held at the Village Administration Building, 200 East Station Street, Ashville, OH 43103. A tour of the existing wastewater treatment plant will be conducted after the meeting. It is highly recommended that all bidders attend this meeting.

Bids shall be either hand-delivered in sealed envelopes or mailed to the Village of Ashville, Village Administration Building, 200 East Station Street, Ashville, OH 43103, until 2:00 PM, current local time on October 20, 2016. The Bids will be publicly opened immediately thereafter and read aloud. All interested parties are invited to attend. Bids received after this time will not be accepted.

Each bidder is required to furnish with its proposal, a Bid Guaranty and Contract Bond in accordance with Section 153.54 of the Ohio Revised Code. Bid security furnished in Bond form, shall be issued by a Surety Company or Corporation licensed in the State of Ohio to provide said surety.

All contractors and subcontractors involved with the project will, to the extent practicable, use Ohio Products, materials, services, and labor in the implementation of their project. Additionally, contractor compliance with the equal employment opportunity requirements of Ohio Administrative Code Chapter 123, the Governor's Executive Order of 1972, and Governor's Executive Order 84-9 shall be required.

This Project is being constructed with funds from the Ohio Environmental Protection Agency, Division of Environmental and Financial Assistance. This Project will be subject to Federal Prevailing Wage Rates (Davis-Bacon Act). It will also be subject to all applicable Federal Equal Opportunity Laws, and related regulations.

No proposal will be entertained unless made on the blanks attached to the bound documents furnished by the Village of Ashville, Ohio and designated for taking bids for this Project.

No bidder shall be permitted to withdraw its bid for a period of sixty (60) days after the time of opening bids.

Should any bid be rejected, the accompanying bid bond, or check, will be returned to the bidder forthwith and should any bid be accepted, the check or bid bond will be returned upon the proper execution and securing of the contract.

The right is reserved, by the Village of Ashville, to reject any or all bids.

ENGINEER'S COST ESTIMATE: \$1,686,230

Publish Dates: September 23, September 30

END OF SECTION 00 1113

SECTION 00 2113

INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

- A. Each Bidder shall include in the Bid a detailed account of its experience, skill, financial standing, and equipment available to perform the work. Each Bid must contain evidence of Bidder's qualification to do business in Ohio or covenant to obtain such qualification prior to award of the Contract.
- B. The Owner may make investigations to determine the ability of the Bidder to perform the Work. When required, the Bidder shall present evidence of its experience in similar Work and that it has the necessary equipment and financial resources to provide materials and complete the Work in a satisfactory manner in the time specified.
- C. No Bid will be accepted from, or Contract awarded to, any person, firm, or corporation in arrears or in default to the Owner upon any debt or Contract, or a defaulter as surety upon same, or has failed to perform faithfully any previous Contract with the Owner.
- D. The Owner reserves the right to reject any Bidder who is in default on any debt or Contract or is a defaulter as surety upon same, or has failed to perform faithfully any previous Contract.

1.2 BIDDING DOCUMENTS

- A. The Bidding Documents consist of all items listed in the Table of Contents. Requirements of any one item apply to the Work of all others. It is the responsibility of each Contractor and Subcontractor to review each Document in detail for Work of its trade and how the Work of other trades affects its Work.
- B. Bidders shall use complete sets of Bidding Documents in preparing Bids. Neither the Owner nor the Engineer assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- C. In making copies of the Bidding Documents available on the above terms, the Owner and the Engineer do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant permission for any other use of the Bidding Documents.
- D. Specification Sections are edited from a master with fixed numbers. Therefore, Section numbers may not run sequentially. 33 0577 may be followed by 33 3000, etc. Pages of each Section are numbered consecutively, starting with Page 1. Each Section ends with the statement: "END OF SECTION _____". If any pages are missing from the issued Documents, contact the Engineer for replacement. Each Bidder is responsible for all Work shown or specified, whether or not pages are missing from an issued Document.
- E. The organization of the Specifications into Divisions, Sections and Articles, and the arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade. Each

Section may be used as a unit of Work, or Sections may be combined as a unit of Work or subdivided into several units of Work.

- F. The captions, headings or titles in this Project Manual are for convenience only and in no way define, limit or describe the scope or intent of any provisions, paragraphs, Divisions, or Sections of this Project Manual.

1.3 CONTRACT REQUIREMENTS

- A. Type of Contract: Lump sum proposal.
- B. Liquidated Damage: Refer to Division 01 Section "Supplementary Conditions".
- C. Contract Completion: All work shall be substantially complete within 305 days, and final completion shall be within 365 days of entering into Contract.

1.4 PREPARATION OF BIDS

- A. General: The following items shall be used without variation by all Bidders and submitted with the Bid.
 - 1. Section 00 2113, "Instructions to Bidders". (for information only)
 - 2. Section 00 4113, "Unit Price Bid Form".
 - 3. Section 00 4313, "Bid Security".
 - 4. Section 00 4325, "Substitution Request Form".
 - 5. Section 00 4336, "Proposed Subcontractors Form".
 - 6. Section 00 4513, "Bidder's Qualifications".
 - 7. Section 00 4515, "OEPA WPCLF Program Requirements"
 - a. Contractor Equal Employment Opportunity (EEO) Certification
 - b. Certification Regarding Debarment, Suspension, and Other Responsibility Matters.
 - c. DBE Forms 1A and 1B
 - 1) To be submitted with bid package OR within 2 weeks of bid opening.
 - d. American Iron & Steel Sign-off Form.
 - 8. Section 00 4519, "Non-Collusion Affidavit".
 - 9. Section 00 4529, "Personal Property Tax Disclosure Affidavit".
- B. Do not detach forms bound into the Bid Packet. Submit the Bid Packet in its entirety with the Bid Forms filled in. Do not submit the project manual.
- C. Fill in all blanks.
- D. Bidders shall base their Bids on materials, equipment or processes specified.
- E. Signatures
 - 1. Bids shall be signed with the name typed below the signature. If the Bidder is a corporation, Bid shall be signed with the legal name of the corporation, followed by the legal signature of an officer authorized to bind the corporation to a Contract. If other than a President or Vice President, a copy of authorization from the Board of Directors shall be attached. If the Bidder is a partnership, full names and addresses of each partner must be given and the Bid shall be signed by the number of partners required to bind the

partnership of the partners, using the term "Partner". If the Bidder is an individual, he shall use either the term "doing business as Builder" or "Sole Owner".

2. List the names and addresses of all parties financially interested in this Bid.

F. Bid Security

1. Each bidder shall submit with its bid a bid guaranty in the form of either a bond for the amount of 100 percent of the bid amount or a certified check, cashier's check, or letter of credit in the amount of 10 percent of the bid in accordance with Ohio Revised Code Section 153.54. The form of the bond shall be in accordance with the requirements of Ohio Revised Code Section 153.54.
2. The Bid security of Successful Bidder will be retained until such Bidder has executed the Agreement, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required contract security within 10 days after receipt of the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the 7th day after the Effective Date of the Agreement or the 66th day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. Bid security with Bids which are not competitive will be returned within 14 days after the Bid Opening.
3. The Owner reserves the right to retain the Bid security of the three lowest Bidders until a responsible Bidder enters into Contract or until 60 days after Bid Opening Date, whichever is less.
4. If any Bidder refuses to enter into Contract, the Owner will retain its Bid Security as liquidated damages.

- G. Questions and Answers: Should any Bidder find discrepancies, inconsistencies, ambiguities, errors, or obvious omissions in the Documents, or should it be in doubt as to meaning, Bidder shall notify **Mr. Matthew Noelker** at AECOM (formerly URS), (614) 464-4500 (matthew.noelker@aecom.com), who will send written instructions to all Bidders. Such notification must be received **no later than 7 days before the bid date**. The Engineer will not be responsible for oral instructions. Oral or other interpretations or clarifications will be without legal effect.

H. Addendum

1. Bidders will be advised during the Bidding period by Addendum of additions or alterations to the Documents. Changes shall be included in the Work covered by the Bid and, in closing the Contract, will become a part thereof.
2. Bidders shall list on the Bid Form all addenda.

1.5 BIDDERS REPRESENTATION

A. Examination of Documents and Site

1. All Bidders shall visit the Site of the proposed Work during the Bidding period and shall inform themselves of all local conditions bearing on transportation, disposal, handling and storage of materials; other Work being performed; accessibility and general character of the Site; and extent of existing Work within or adjacent thereto.

2. The failure or omission of any Bidder to receive or examine any forms, instruments, or document, or to visit the Site and acquaint himself with conditions there existing shall in no way relieve any Bidder from any obligation with respect to its Bid.
- B. Non-Collusion Affidavit: Complete in full the attached Non-Collusion Affidavit. Form shall be signed by the same person authorized to sign Bids.
- C. Nondiscrimination In Employment
1. Contracts for Work under this proposal will obligate the Contractors and subcontractors not to discriminate in employment practices.
 2. Bidders must, if requested, submit a compliance report concerning their employment practices and policies in order to maintain their eligibility to receive the award of the Contract.
 3. Successful Bidders must be prepared to comply in all respects with the Contract Provisions regarding nondiscrimination.
- D. License to do Business in Ohio: Corporations not chartered in Ohio shall include an affidavit executed by an officer of the corporation stating that the corporation has conformed with the provisions of the Revised Code of the State of Ohio and obtained a certificate authorizing it to do business in the State of Ohio. Certificates or copies of them shall be obtained from the office of the Secretary of State, Columbus, Ohio.

1.6 SUBMISSION OF BIDS

- A. Submit Bids on or before the date stated in the Advertisement for Bids. No Bids will be considered after that time.
- B. Submit the Bidding Package with forms completed and all necessary attachments in a sealed opaque envelope marked with:
1. Bidder's Name and Address
 2. Signature of person signing the Bid
 3. Project Name.
- C. Deliver in person or send by mail, enclosed in a separate mailing envelope addressed to:
- Village of Ashville
Village Administration Building
200 East Station Street
Ashville, OH 43103
1. If mailed, enclose in a separate mailing envelope, mark "Bid Enclosed" on the face.
- D. No oral or telegraphic Bids will be accepted.
- E. Bids submitted early may be withdrawn by the Bidder by written request signed by the person signing the Bid. Such request must be received by the party receiving Bids prior to the Bid receipt deadline time.
- F. If, within 48 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 mistake in the preparation of its Bid, in accordance with the provisions of Section 9.31 of the Ohio Revised Code, that Bidder may withdraw its Bid and the Bid security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the work to be provided under the Contract Documents.

- G. After 48 hours, no Bid may be withdrawn for 60 days after scheduled closing time for receipt of Bids.

1.7 CONSIDERATION OF BIDS

- A. Bid Opening: Properly identified Bids received on time will be publicly opened and read aloud.
- B. Rejection of Bids
 1. The Owner reserves the right to reject any or all Bids, and shall have no liability whatsoever to any Bidder whose Bid is not accepted.
 2. Bid Packages containing irregularities, conditional or obscure language, or additions not requested by the Bidding Documents may be rejected.
- C. Acceptance of Bids: Acceptance of a Bid will not constitute an Agreement between the Owner and Bidder, and will not be binding upon the Owner unless and until an Agreement covering all conditions and provisions of the Work has been reduced to writing and executed by both parties.
- D. Bids to Remain Subject to Acceptance: All bids will remain subject to acceptance for sixty (60) days after the day of the Bid opening, but Owner may, at its sole discretion, release any Bid and return the Bid security prior to that date.

1.8 AWARD OF CONTRACT

- A. Owner reserves the right to reject any or all Bids, including without limitation the rights to reject any or all nonconforming, nonresponsive, unbalanced or conditional Bids and to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner. Owner also reserves the right to waive all informalities not involving price, time or changes in the Work and to negotiate contract terms with the Successful Bidder. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.
- B. In evaluating Bids, Owner will consider the qualifications of Bidders, 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.
- C. Owner may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Supplementary Conditions. Owner also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment

proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.

- D. Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

1.9 SUBSTITUTE AND "OR-EQUAL" ITEMS

- A. The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the successful Contractor has been determined. The procedure for submission of any such application by Contractor and consideration by Engineer is set forth in the General Conditions, and as follows.

B. Substitution of Manufacturers

1. Those articles, devices, materials, forms of construction fixtures, equipment, process or manufacturers named in the Specifications to denote the kind and quality required, whether or not the words "or equal" are used, shall be known as "standards".
2. Where two or more "standards" are named together, the successful Bidder may furnish one of the "standards" named.
3. Bidders desiring consideration for the use of material, equipment, etc. not named in the Specifications may submit the "Substitution Request Form" with the Proposal Form and listing for each change: (1) The "standard" specified, and the substitution, and (2) the deduct price associated with the proposed substitution. The price shall include all work associated with the proposed substitution, including but not limited to architectural, structural, electrical, engineering costs, and all related work.
4. Substitutions will only be considered after the successful contractor has been determined. The successful contractor must submit complete specifications, samples, catalogs, data sheets, test results, and description of proposed substitutions within 3 days of notification to provide a sound basis for comparison with the specifications.
5. The listing of substitutions at the time of bid is only required for those items listed on the Substitution Request Form. Substitutions for those items listed on the Substitution Request Form will only be considered if the proposed substitute is listed at the time of Bid. The offering and consideration of substitutions for other items may be made throughout the contract time.
6. Any substitution which is accepted must be incorporated in the formal Contract by Change Order.

C. Substitution Request Form

1. Bidders shall base their Bids on materials, equipment or processes described on the Drawings or specified in the Specifications without consideration of possible substitute or "or equal" items.

2. Bidders are invited to submit for consideration quotations for substitutes capable of performing the specified functions.
3. State on the Substitution Request Form submitted with the Bid the amount to be deducted from the amount of the Base Bid for each substitution of items listed.
4. When requested, submit complete specifications and descriptions of any items the successful bidder proposes to substitute, within 3 days of notification to do so.
5. Prior approval by Engineer is not required on items submitted on the Substitution Request Form.
6. Such substitutes will be accepted or rejected, and the Contract sum adjusted accordingly by Change Order.
7. After the Contract is awarded, no further substitutions will be permitted for the items listed, except as outlined on the Substitution Request Form.

D. Approval Process

1. The successful Contractor must submit complete specifications, samples, catalogs, data sheets, test results, and description of proposed substitutions to provide a sound basis for comparison with the specified items. Include a statement and explanatory Drawings showing all changes in related or adjacent Work. List every departure from the specified item.
2. The burden of proof is with the proposer of the substitution.
3. If, in the opinion of the Engineer, the item submitted does not meet with the intent of the design or is not equal to the item specified, it may disapprove it or, if it finds it in the interest of the Owner, it may approve such items submitted.
4. If the substitute is accepted, the Contractor shall pay all costs of extra labor and materials required by other Contractors and Subcontractors arising from the incorporation of substitutions into the Project, and provide additional Drawings as required by the Engineer. The substitution will be incorporated in the formal Contract by Change Order.

1.10 DECLARATION OF MANUFACTURER

- A. The Drawings and Specifications have been designed around the manufacturer that is first listed in the Specifications for the item. This manufacturer shall be known as the Basis of Design.
- B. Other acceptable manufacturers may be listed for each item. The Engineer has determined that similar equipment supplied by these additional manufacturers will be acceptable provided it will perform the necessary function, is of similar design, and meets the intent of the Contract Documents.
- C. The bids submitted by the bidder must be based on one of the named manufacturers. Or equal, or other manufacturers must be included on the Substitution Request Form for consideration.
- D. The bid forms contain a Proposed Products Form which must be completed for the items listed.
- E. The bidder shall indicate, in the space provided, the manufacturer upon which it has based its bid, and the bidder agrees to supply equipment furnished by this manufacturer when performing the contract.

- F. If the bidder fails to indicate which manufacturer it is basing its bid upon in the form, it is assumed, understood, and agreed that the bidder will furnish equipment supplied by the manufacturer listed as the "Basis of Design" for the particular equipment.
- G. The declaration of manufacturers is only required for those items listed on the Proposed Products Form.

1.11 MINIMUM WAGE RATES

- A. The minimum wage to be paid to all skilled labor, intermediate grade labor, and unskilled and common labor employed on this Project shall be in accordance with the Wage Determination ascertained and determined by the Ohio Bureau of Employment Services.
- B. The wage rates included herein are applicable as of the date of advertising for bids. However, Contractors must abide by the latest prevailing wage rate listing effective at the time of Bid opening and must update rates of wages paid to employees as changes in the wage rates occur. Contractors shall submit certified copies of payrolls to the Owner as required by law.

1.12 SMALL BUSINESSES IN RURAL AREAS

- A. This procurement is subject to the EPA policy of encouraging the participation of small businesses in rural areas. It is EPA policy that recipients of EPA financial assistance awards utilize the services of small businesses in rural areas (SBRAs), to the maximum extent practicable. The objective is to assure that such small business entities are afforded the maximum practicable opportunity to participate as subcontractors, suppliers and otherwise in EPA-awarded financial assistance programs. This policy applies to all contracts and subcontracts for supplies, construction, and services under EPA grants or cooperative agreements. Small purchases are also subject to this policy.

1.13 POST-BID REQUIREMENTS

- A. Contract Forms
 - 1. The following Contract Forms will be provided by the Engineer and shall be used without variation by the selected Bidder:
 - a. Owner-Contractor Agreement
 - b. Contract Bond (Performance and Payment Bonds)
 - 1) The Bidder shall deliver the required bonds to the Owner not later than 10 days following the date of receipt of the Notice of Award.
 - 2) If the Work is to be commenced prior thereto in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Subparagraph.
 - c. DBE Form 2 and MBE/WBE Form 5700-52A.
 - 2. Copies of each form will be furnished to the selected Bidder.
- B. Submittals
 - 1. Comply with Division 01 Section "Submittal Procedures".
 - 2. Submit the following items prior to Contract signing:
 - a. Contract Bond (Performance and Payment Bonds)

3. Lack of submission or an untimely submission shall be considered a Nonresponsive Bid and such Bid may be rejected.

PART 2 - PRODUCT (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 00 2113

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SECTION 00 3132

GEOTECHNICAL DATA

PART 1 GENERAL

1.1 SOILS INFORMATION AND DISCLAIMER

- A. The following (2) subsurface investigation reports were prepared for the Owner by Professional Service Industries, Inc., 4960 Vulcan Avenue, Columbus, OH 42338, for use in design. They are provided for informational purposes only. Such reports and logs are not a part of the Contract Documents and are not to be relied upon as a complete representation of all possible soil conditions. The subsurface investigation reports and log are not approved by nor guaranteed in any manner by the Owner or Engineer. Use of the information is totally at the risk of the Contractor. Additional soils information, if needed by any Contractor, shall be obtained by the Contractor at no cost to the Owner.

PART 2 - PRODUCT (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 00 3132

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Preliminary Subsurface Exploration Report
of
New Waste Water Treatment Plant
Village of Ashville, Pickaway County, Ohio

Prepared for

URS Corporation
277 West Nationwide Boulevard
Columbus, Ohio 43215

Prepared by

Professional Service Industries, Inc.
4960 Vulcan Avenue
Columbus, OH 43228

Report Date: December 6, 2013

PSI Project No. 0102592

December 6, 2013

URS Corporation
277 West Nationwide Boulevard
Columbus, OH 43215

Attn: Mr. Jeffrey Kerr, P.E.

**Re: Preliminary Subsurface Exploration Report
New Waste Water Treatment Plant
South of SR 752
Village of Ashville, Pickaway County, Ohio
PSI Project Number: 0102592**

Dear Mr. Kerr:

Thank you for choosing Professional Service Industries, Inc. (PSI) as your consultant for the referenced project. Per your authorization, PSI has completed a geotechnical engineering study for the referenced project. The results of the study are discussed in the accompanying report, one (1) copy of which is enclosed.

If you have any questions pertaining to this report, please contact our office at (614) 876-8000. PSI would be pleased to continue providing geotechnical services throughout the implementation of the project, and we look forward to working with you and your organization on this and future projects.

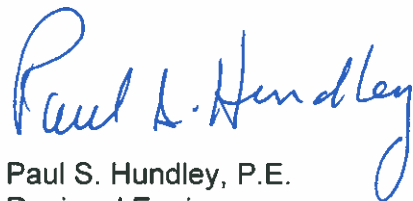
Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.



Matthew A. Archer
Staff Engineer

MA/PSH/ma

Enclosures



Paul S. Hundley, P.E.
Regional Engineer



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1.0 PROJECT INFORMATION

1.1 Project Authorization

The following table summarizes, in chronological order, the Project Authorization History for the services performed and represented in this report by Professional Service Industries, Inc. (PSI).

Document and Reference	Date	Requested/Provided By
Request for Proposal	09/24/2013	Jeffrey Kerr, URS
PSI Proposal No.: 102-89907	10/01/2013	Matthew Archer and Paul Hundley, PSI Inc.
Project Authorization	11/07/2013	Jeffrey Kerr, URS

1.2 Project Description

According to the RFP and project documents provided, it is PSI's understanding that the project involves design and construction a new Waste Water Treatment Plant (WWTP) located on a 32 acre parcel, south of SR 752 in the Village of Ashville, Pickaway County, Ohio. The WWTP is expected to consist of a headworks building, oxidation ditch, two final clarifiers, a UV disinfection tank, an aerobic digester, a sludge press and cake storage building and an administration building. Open cut excavations are anticipated to install the clarifiers, oxidation ditch, anaerobic digesters, UV disinfection tank and three buildings.

No preliminary drawings or layouts on this site are currently available at the time of this report.

The following table lists the material and information provided for this project:

DESCRIPTION OF MATERIAL	PROVIDER/SOURCE	DATE
Scope of Services for Subsurface Investigations	URS	09/24/2013
Parcel Data	URS	09/24/2013
Aerial Photo Showing Boring Locations	URS	11/07/2013

The preliminary geotechnical recommendations presented in this report are based on the available project information for the proposed WWTP located in the Village of Ashville, Pickaway County, Ohio and the subsurface materials described in this report. If any of the information noted above is incorrect, please inform PSI in writing so that we may amend the recommendations presented in this report if appropriate and if desired by the client. PSI will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

1.3 Purpose and Scope of Services

The purpose of this study was to explore the subsurface conditions at the site to prepare preliminary foundation and excavation recommendations for the proposed construction. PSI's contracted scope of services included drilling two (2) soil test borings at the site, to a depth of approximately 40 feet below the ground surface, select laboratory testing, and preparation of this geotechnical report. The geotechnical exploration was planned according to the request of the client to provide opinions and preliminary recommendations foundation design. This report briefly

outlines the testing procedures, presents available project information, describes the site and subsurface conditions, and presents recommendations regarding the following:

- A general assessment of area geology based on our local knowledge and study of available geological literature;
- General location, description of materials encountered in the borings which may interfere with construction progress or structure performance, including existing fills, cobbles/boulders, or organic soils;
- Identification of water levels encountered at the time of drilling and recommendations for dewatering if required;
- Recommendations for fill including the selection of materials for use and procedures for placement;
- Foundation system evaluations and the assessment of the feasibility of utilizing shallow foundations;
- Design parameters required for the foundation system, including allowable bearing pressure, minimum foundation width, and foundation bearing levels;
- Site preparation as needed for support of foundations and floor slabs;
- Recommendations for open cut excavation work to install clarifiers, oxidation ditch, anaerobic digesters, UV disinfection tank, and three buildings;
- Identify the swell potential of surface soil based on the laboratory index tests, and provide recommendations, if any, for potentially swelling soils;
- Recommendations, with attachments including a boring location drawing, and computer generated boring logs.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface water, groundwater, or air on, below, or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes.

PSI's scope also did not provide any service to investigate or detect the presence of moisture, mold or other biological contaminants in or around any structure, or any service that was designed or intended to prevent or lower the risk of the occurrence or the amplification of the same. Client should be aware that mold is ubiquitous to the environment with mold amplification occurring when building materials are impacted by moisture. Client should be aware that site conditions are outside of PSI's control, and that mold amplification will likely occur, or continue to occur, in the presence of moisture. As such, PSI cannot and shall not be held responsible for the occurrence or reoccurrence of mold amplification.

2.0 SITE AND SUBSURFACE CONDITIONS

2.1 Site Location and Description

The project site is located on a 32 acre parcel, south of SR 752 in the Village of Ashville, Pickaway County, Ohio. The site latitude and longitude is approximately N 39.972113° and 83.96030° W respectively. The approximate site location is depicted on the "Site Location Map" in the Appendix.

The property is bordered by SR 752 to the north, rail road track to the east, residential housing to the south, and a tree line and rail road tracks to the west.

The site is located in an existing agricultural field. Ground cover at the time of our drilling operations consisted of soft topsoil and organic debris.

Site topographic information was not provided to PSI; however, based on visual inspection, the existing site grades appear fairly level with approximately 3 to 5 feet of relief across the site.

2.2 Site Geology

Based on the geologic map published by the Ohio Geological Survey, the site lies within the Columbus Lowland. Geology consists of Loamy, high-lime (west) to medium-lime (east) Wisconsinan-age till and extensive outwash in Scioto Valley over deep Devonian- to Mississippian-age carbonate rocks, shales, and siltstones.

Information obtained from the Ohio Department of Natural Resources (ODNR) website also indicated that no known abandoned mine was recorded in the vicinity of the site area. "Known and Probable Karst in Ohio" map published by ODNR indicates that no Karst (sink hole) is recorded in the vicinity of the project site.

2.3 Subsurface Conditions

The site subsurface conditions were explored with two (2) soil test borings, advanced to a depth of approximately 40 feet, within the proposed construction area on November 14th, 2013. The boring locations/depths were selected by URS Corporation and were staked in the field by URS Corporation personnel. The approximate boring locations are depicted on the, "Boring Location Plan" in the Appendix.

The borings were advanced utilizing 2¼ inch inside diameter, hollow stem auger drilling methods. Soil samples were routinely obtained during the drilling process. Selected soil samples were later tested in the laboratory to obtain soil material properties for the preliminary foundation open cut excavation recommendations. Drilling, sampling, and laboratory testing were accomplished in general accordance with ASTM procedures.

Approximately 8 inches of topsoil was encountered at the surface of both borings.

Glacial soils generally encountered below topsoil consisted fine-grained lean clays in the upper 19 to 20 feet followed by coarse-grained sands to termination depths. Fine-grained soils

predominately consisted of sandy lean clays (CL), lean clays with sand (CL) and silt with sand (ML). The standard penetration N-values within these fine-grained soils generally indicates consistencies of “medium stiff” to “stiff.” Moisture contents of these soils ranged from 8 to 27 percent. Coarse-grained sands predominately consisted of Silty Sands (SM). The standard penetration N-values within these coarse-grained soils generally indicates consistencies of “dense” to “very dense.” Moisture contents of these soils ranged from 7 to 18 percent.

The above subsurface descriptions are of a generalized nature to highlight the major subsurface stratification features and material characteristics. The boring logs included in the Appendix should be reviewed for specific information at individual boring locations. These records include soil/rock descriptions, stratifications, penetration resistances, and locations of the samples and laboratory test data. The stratifications shown on the boring logs represent the conditions only at the actual boring locations. Variations may occur and should be expected between boring locations. The stratifications represent the approximate boundary between subsurface materials and the actual transition may be gradual. Water level information obtained during field operations is also shown on these boring logs. The samples that were not altered by laboratory testing will be retained for 60 days from the date of this report and then will be discarded.

The following table briefly summarizes the range of results from the field and laboratory testing programs. Please refer to the attached boring logs and laboratory data sheets for more specific information:

SUMMARY OF SPT N VALUES, MOISTURE CONTENT & GROUND WATER LEVELS

Top of Soil Sampling Depth (ft)	SPT N Values (blows/ft)			Top of Soil Sampling Depth (ft)	Moisture Content (%)		
	B-01	B-02	Average		B-01	B-02	Average
1.0	6	7	7	1.0	24	27	26
3.5	14	13	14	3.5	13	16	15
6.0	15	12	14	6.0	13	17	15
8.5	13	29	21	8.5	15	9	12
13.5	10	11	11	13.5	12	13	13
18.5	90	11	51	18.5	8	13	11
23.5	40	48	44	23.5	13	5	9
28.5	56	26	41	28.5	16	18	17
33.5	100	71	86	33.5	7	18	13
38.5	97	65	81	38.5	8	7	8
Groundwater Level Reading and Borehole Caving Depth							
Water Level Encountered While Drilling					22.0	22.0	
Water Level Reading Encountered Upon Completion					22.5	23.0	
Caving Depth after Casing Withdrawal					22.5	23.2	

2.4 Laboratory Test Results

Laboratory testing was performed on representative split- spoon samples obtained during drilling. The laboratory tests included natural moisture content, percent fines, and Atterberg Limits. The laboratory test results are summarized in the table below.

Summary of Laboratory Test Results

Sample Location	Sample Depth (ft)	Moisture Content (%)	Percent Fines (%)	Atterberg Limits			USCS Soil Classification
				LL	PL	PI	
B-01	3.5 - 5.0	16	83.5	NP	NP	NP	ML
B-01	6.0 - 7.5	17	63.7	28	17	11	CL
B-01	28.5 - 30.0	18	19.5	NP	NP	NP	SM
B-02	3.5 - 5.0	13	76.0	22	15	7	CL
B-02	13.5 - 15.0	12	63.5	22	10	12	CL

2.5 Water Level Measurements

Ground water was observed in all borings during our field investigation at a depth of approximately 22.0 feet. Due to the granular nature of the ground water bearing strata, PSI anticipates that the static groundwater level is approximately 22.0 feet.

The groundwater level at the site, as well as perched water levels and volumes, will fluctuate based on variations in rainfall, snowmelt, evaporation, surface run-off and other related hydrogeologic factors. The water level measurements presented in this report are the levels that were measured at the time of PSI's field activities.

3.0 GEOTECHNICAL EVALUATION

3.1 Geotechnical Discussion

According to our investigation findings, the following key items are highlighted for the project design and construction.

- No preliminary drawings or layouts on this site are currently available at the time of this report.
- Natural soils generally consisted of fine-grained clays and silt in the upper 20 feet followed by coarse-grained sands to termination depths. Majority soil samples encountered on the site had relatively moderately high consistency below 3.0 feet. The natural soils should be capable of supporting the proposed building foundations without major soil improvement according to our test boring findings. A geotechnical engineer should inspect footing excavations to ensure consistency with the recommended bearing pressure.
- As an alternative to shallow foundations, a raft or mat foundation may be considered. This option may be viable if the total weight and loads of the proposed structure can be supported within the allowable area to sufficiently reduce the mat contact stress. This foundation could consist of structural grade beams in a waffle pattern or a mass slab supported on a layer of engineered fill. PSI should evaluate the feasibility of a raft foundation after the final building and floor loads are known.
- Open cut excavations are anticipated to install the clarifiers, oxidation ditch, anaerobic digesters, UV disinfection tank and three buildings. Excavations should be designed and constructed in accordance with the OSHA Regulation 29 CRF Part 1926. Temporary

slopes in the upper 20 feet of the soil profile at this site should not exceed steeper than a ratio of three-quarter ($\frac{3}{4}$) horizontal to one (1) vertical where workers or equipment will occupy space at the toe.

- Where excavations are planned in excess of 20 feet below the existing grade, a temporary retaining structure will be required. The retaining structure should extend an adequate distance below the proposed excavation to prevent soil heaving and piping.
- Ground water was observed during our field activities at a depth of 22 feet. However, the presence of gray glacial soils above this level is an indication that the water level could be higher a different times on the site. PSI recommends the water table be lowered a minimum of 2 feet below the excavation bottoms where excavation are planned in excess of 22 feet. The below grade walls should be adequately water-proofed to prevent seepage and dewatering systems should be installed where the water table is not lowered below the excavation limits.
- On-site soil cuttings, free of organic or other deleterious materials, may be reused as fill (since the majority of these soil samples are estimated to be low to medium plasticity clay) if the cuttings are tested and meet the project specification. However, soils having maximum particle size greater than three (3) inches, a liquid limit greater than forty (40) and plasticity index greater than twenty (20), such as encountered in Boring B-02 and B-03, should not be used as fill below lightly loaded structures and slabs. Saturated on-site soil cuttings should not be used as fill in the building or pavement areas. Whether or not the cuttings are suitable for reuse should be determined by proper soils tests under the supervision of an experienced civil/geotechnical engineer. PSI can provide the testing services before and during the construction of this project.
- The non-plastic silt encountered in B-01 at a depth of 1.8 to 5.5 feet is a frost susceptible soil and is difficult to work with when exposed to precipitation. These soils should not be used as fill within the upper 30 inches (frost depth) of the subgrade.
- Since this site contains fine-grained clay soils and relatively high ground water table, it may become difficult to achieve the compaction as required by proof-rolling. The soils may need to be scarified and dried to a moisture content that will facilitate compaction in accordance with the structural fill requirements of this report. Use of geofabric and/or geogrid reinforcement or lime, kiln dust, or fly ash stabilization may be necessary in order to expedite the work and achieve the required level of soil compaction in floor slab areas.

4.0 GEOTECHNICAL RECOMMENDATIONS

The following geotechnical related recommendations have been developed on the basis of the subsurface conditions encountered and PSI's understanding of the proposed development. Should changes in the project criteria occur, a review must be made by PSI to determine if modifications to our recommendations will be required.

4.1 Site Preparation

PSI recommends that topsoil, vegetation, roots, soft, organic, frozen, or unsuitable soils in the building areas be stripped from the site and either wasted or stockpiled for later use in non-

structural areas. It should also be noted that it is not unusual for topsoil thickness to vary from these values in the open field. Oftentimes the topsoil can be deeper in low-lying areas, where erosion, wind and precipitation can deposit this material. A minimum width of the undercut areas for footing construction can be estimated as twice the footing width. A representative of the geotechnical engineer should determine and document the depth of removal at the time of construction.

In this region, these otherwise competent silts and lean clays can undergo a significant loss of stability when construction activities are performed during wetter portions of the year. PSI anticipates that the soils in the project area can become easily disturbed if subjected to conventional rubber tire or narrow track-type equipment. Soils that become disturbed would need to be excavated and replaced; however, this remedial excavation may expose progressively wetter soils with depth, thus compounding the problem condition. Thus, a normal approach to subgrade preparation may not be possible. Appropriate wide-track equipment selection should aid in minimizing potential disturbance.

After stripping to the proposed subgrade level, a representative of the geotechnical engineer should inspect bearing surfaces to ensure its consistency with the recommendations presented herein. Care should be taken during construction activities not to allow excessive drying or wetting of exposed soils. The subgrade soils should be scarified and compacted to at least 98% of the materials' standard proctor maximum dry density, in general accordance with ASTM procedures, to a depth of at least twelve (12) inches below the surface. New fill should not be placed on frozen ground.

After subgrade preparation and observation have been completed, fill placement required to establish grade may begin. Low-plasticity structural fill materials placed beneath the structural features or slabs should be free of organic or other deleterious materials and have a maximum particle size of less than three (3) inches. Low-plasticity soils are defined as having a liquid limit less than forty (40) and plasticity index less than twenty (20). The in-situ lean clays can be reused as engineered fill as long they are free of any organic material and meet the requirements outlined in this report. A representative of PSI should be on-site to observe, test, and document the placement of the fill. If the fill is too dry, water should be uniformly applied and thoroughly mixed into the soil by disking or scarifying. Close moisture content control will be required to achieve the recommended degree of compaction. If engineered fill placement must proceed during a wet or cool time of the year, it will likely be infeasible to re-use the on-site soils as engineered fill, and imported fill materials will be required. If wet or cool season earthwork is necessary, PSI recommends the use of imported fill materials meeting the requirements of Ohio Department of Transportation (ODOT) CMS Item 203.

In utility trenches, shallow foundation excavations, and other areas where large compaction equipment cannot be used, granular engineered fill should be placed as backfill. PSI recommends the use of material meeting ODOT CMS Item 703.16.B or 703.16.C, Structure Backfill, for use as granular engineered fill. Engineered fill should be placed in accordance with the recommendations stated in this section of the report.

Fill should be placed in maximum loose lifts of eight (8) inches and compacted to at least 98% of the materials' standard proctor maximum dry density, and within a range of the optimum moisture content as designated in the table below, as determined in general accordance with ASTM procedures. Each lift of compacted-engineered fill should be tested and documented by a

representative of the geotechnical engineer prior to placement of subsequent lifts. The edges of compacted fill should extend a minimum of five (5) feet beyond the building footprint, or a distance equal to the depth of fill beneath the footings, whichever is greater. The measurement should be taken from the outside edge of the footing to the toe of the excavation prior to sloping.

The fill placed should be tested and documented by a geotechnical technician and directed by a geotechnical engineer to evaluate the placement of fill material. It should be noted that the geotechnical engineer of record can only certify the testing that is performed and the work observed by that engineer or staff in direct report to that engineer. The fill should be evaluated in accordance with the following Table:

MATERIAL TESTED	PROCTOR TYPE	MIN % DRY DENSITY	PLACEMENT MOISTURE CONTENT RANGE	FREQUENCY OF TESTING ^{*2}
Structural Lean Clay Fill (Cohesive)	Standard	98%	-2 to +2 %	1 per 5,000 ft ² of fill placed / lift
Structural Fill (Granular)	Standard	98%	-2 to +2 %	1 per 5,000 ft ² of fill placed / lift
Random Fill (non load bearing)	Standard	90%	-3 to +3 %	1 per 6,000 ft ² of fill placed / lift
Utility Trench Backfill	Standard	98%	-2 to +2 %	1 per 150 lineal foot / lift

^{*1} Relative Density as determined in general accordance with ASTM D4253 and D4254. ^{*2} Minimum 2 per lift.

Tested fill materials that do not achieve either the required dry density or moisture content range shall be recorded, the location noted, and reported to the Contractor and Owner. A re-test of that area should be performed after the Contractor performs remedial measures.

4.2 Preliminary Foundation Recommendations

The planned construction can be supported on conventional spread-type footing foundations bearing on either competent naturally deposited soils or properly compacted and documented engineered fill provided existing fill materials are removed. **During footing excavations, a geotechnical engineer should inspect the excavation bottoms to ensure its consistency with the recommended bearing pressures.** If it is desired for the planned foundations to bear on properly compacted and documented fill, the geotechnical engineer should be allowed to review the material as to ensure its consistency with the recommended bearing pressures. Based on the two soil borings, spread footings for building columns, continuous footings for bearing walls, can be designed for allowable soil bearing capacity as presented in the table below. PSI recommends a minimum dimension of thirty (30) inches for square footings and eighteen (18) inches for continuous footings to minimize the possibility of a local bearing capacity failure. A 12 inch layer of crushed stone may be required to stabilize the bearing surface if foundations are planned to bear on silts found in B-01 at a depth of approximately 1.8 to 5.5 feet or silty sands at depths greater than 20 feet. .

Allowable Bearing Capacity

Foundation Depth (ft)	ASTM Soil Classification	Saturated Unit Weight (pcf)	Shear Strength (psf)	Angle of Internal Friction (Degrees)	Allowable Bearing Capacity (psf)
3	CL	115	1500	15	2750
5	CL	115	1500	15	3000
7	CL	115	1500	15	3000
10	CL	115	1500	15	3000
15	CL	110	1250	15	2750
20	SM	100	-	36	>5000
30	SM	100	-	36	>5000

* Based on dead load plus design live load

Exterior footings and footings in unheated areas should be located at a depth of thirty-two (32) inches or deeper below the final exterior grade to provide adequate frost protection. If the building is to be constructed during the winter months or if footings will likely be subjected to freezing temperatures after foundation construction, then the footings should be protected from freezing. PSI recommends that interior footings be a minimum depth of eighteen (18) inches below the finished floor elevation.

The foundation excavations should be observed and documented by a representative of PSI prior to steel or concrete placement to assess that the foundation materials are consistent with the materials discussed in this report, and therefore are capable of supporting the design loads. Soft or loose soil zones encountered at the bottom of the footing excavations should be removed to the level of suitable soils, and replaced with adequately compacted structural fill. Fill placed below the foundations where unsuitable materials are removed should extend 1 foot outside the foundation limits for every one (1) foot in thickness between the intended bearing surface and the underlying, suitable natural soils. Alternately, the foundations may be extended through unsuitable soils to bear on the underlying suitable material. Cavities formed as a result of excavation of soft or loose soil zones should be backfilled with lean concrete or dense graded compacted crushed stone.

After opening, footing excavations should be observed and concrete placed as quickly as possible to avoid exposure of the footing bottoms to wetting and drying. Surface run-off water should be drained away from the excavations and not be allowed to pond. If possible, the foundation concrete should be placed during the same day the excavation is made. If it is required that footing excavations be left open for more than 1 day, they should be protected to reduce evaporation or entry of moisture.

Based on the known subsurface conditions and site geology, laboratory testing and past experience, PSI anticipates that properly designed and constructed footings supported on the recommended materials should experience total and differential settlement between adjacent columns of less than one (1) inch and $\frac{3}{4}$ inch, respectively.

As an alternative, a raft or mat foundation may be considered. This option may be viable if the

total weight and loads of the proposed structure can be supported within the allowable area to sufficiently reduce the mat contact stress. This foundation could consist of structural grade beams in a waffle pattern or a mass slab supported on a layer of engineered fill. At least 6 inches of soil should be removed below the floor subgrade elevation and replaced with compacted granular fill. The rigid frame created by the structural grade beams or mass slab would help to reduce differential settlement by distributing the loads. However, placement of underground utilities for the proposed structure may be complicated with this foundation type. PSI should evaluate the feasibility of a raft foundation after the final building and floor loads are known.

Be advised that as a part of the foundation selection process, there is a cost/benefit evaluation. Although PSI is recommending specific foundation types, we have not accomplished the cost/benefit evaluation.

4.3 Earthquake and Seismic Design Consideration

The 2006 International Building Code (IBC) requires a site class for the calculation of earthquake design forces. This class is a function of soil type (i.e., depth of soil and strata types). Based on the depth to rock and the estimated shear strength of the soil at the boring locations, **Site Class "C"** is recommended. The USGS-NEHRP probabilistic ground motion values near latitude N 39.972113° and longitude 83.96030° W are as follows:

Period (seconds)	2% Probability of event in 50 years (g%)	Site Coefficients	Max. Spectral Acceleration parameters	Design Spectral Acceleration parameters	
0.2 (S _s)	20.3	F _a = 1.2	S _{ms} = 0.244	S _{Ds} = 0.163	T ₀ = 0.093
1.0 (S ₁)	6.7	F _v = 1.7	S _{m1} = 0.114	S _{D1} = 0.076	T _s = 0.466

The Site Coefficients, F_a and F_v were interpolated from IBC 2006 Tables 1613.5.3 (1) and 1613.5.3 (2) as a function of the site classifications and the mapped spectral response acceleration at the short (S_s) and 1 second (S₁) periods.

According to Section 1613.5.6 of IBC 2006, sites supporting structures in design category "C" and below must be evaluated for slope instabilities, liquefaction and surface rupture due to faulting or lateral spreading. A detailed study of these effects was beyond PSI's scope of services. However, the following table presents a qualitative assessment of these issues considering the site class, the subsurface soil properties, the groundwater elevation, and probabilistic ground motions:

Hazard	Relative Risk	Comments
Liquefaction	Low	The soil within the upper 50 feet of the subsurface profile is a relatively dense and/or cohesive soil
Slope Stability	Low	The site is relatively flat and does not/will not incorporate significant cut or fill slopes
Surface Rupture	Low	The site is not underlain by a mapped Holocene-aged fault

4.4 Floor Slab Recommendations

The floor slab can be grade supported on naturally occurring soils with minor remediation or stabilization practices. Proof-rolling, as discussed earlier in this report, should be accomplished to identify soft or unstable soils that should be removed from the floor slab area prior to fill placement and/or floor slab construction and replaced with properly compacted structural fill.

PSI recommends that a minimum four (4) inch thick compactable and trimmable granular material mat be placed beneath the floor slab to enhance drainage. The soil surface shall be graded to drain away from the building without low spots that can trap water prior to placing the granular drainage layer. Polyethylene sheeting should be placed to act as a vapor retarder where the floor will be in contact with moisture sensitive equipment or products such as tile, wood, carpet, etc., as directed by the design engineer. The decision to locate the vapor retarder in direct contact with the slab or beneath the layer of granular fill should be made by the design engineer after considering the moisture sensitivity of subsequent floor finishes, anticipated project conditions, and the potential effects of slab curling and cracking. The floor slabs should have an adequate number of joints to reduce cracking resulting from differential movement and shrinkage.

For subgrade prepared as recommended and properly compacted fill, a modulus of subgrade reaction, k value, of 150 pounds per cubic inch (pci) may be used in the grade slab design. However, depending on how the slab load is applied, the value will have to be geometrically modified. The value should be adjusted for larger areas using the following expression for cohesive and cohesionless soil:

Modulus of Subgrade Reaction, $k_s = \left(\frac{k}{B}\right)$ for cohesive soil and

$$k_s = k \left(\frac{B+1}{2B}\right)^2 \text{ for cohesionless soil}$$

where: k_s = coefficient of vertical subgrade reaction for loaded area,
 k = coefficient of vertical subgrade reaction for 1 square foot area, and
 B = effective width of area loaded, in feet

The precautions listed below should be followed for construction of slab-on-grade pads. These details will not reduce the amount of movement, but are intended to reduce potential damage should some settlement of the supporting subgrade take place. Some increase in moisture content is inevitable as a result of development and associated landscaping. However, extreme moisture content increases can be largely controlled by proper and responsible site drainage, building maintenance and irrigation practices.

- Cracking of slab-on-grade concrete is normal and should be expected. Cracking can occur not only as a result of heaving or compression of the supporting soil and/or bedrock material, but also as a result of concrete curing stresses. The occurrence of concrete shrinkage crack, and problems associated with concrete curing may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement, finishing, and curing, and by the placement of crack control joints at frequent intervals, particularly where re-entrant slab corners occur. The American Concrete Institute (ACI) recommends a maximum panel size (in feet) equal to approximately three times the thickness of the slab (in inches) in both directions. For example,

joints are recommended at a maximum spacing of twelve (12) feet based on having a 4-inch slab. PSI also recommends that the slab be independent of the foundation walls. Using fiber reinforcement in the concrete can also control shrinkage cracking.

- Areas supporting slabs should be properly moisture conditioned and compacted. Backfill in all interior and exterior water and sewer line trenches should be carefully compacted to reduce the shear stress in the concrete extending over these areas.

Exterior slabs should be isolated from the building. These slabs should be reinforced to function as independent units. Movement of these slabs should not be transmitted to the building foundation or superstructure.

4.5 Utilities Trenching

Excavation for utility trenches shall be performed in accordance with Occupational Safety & Health Administration (OSHA) regulations as stated in 29 CFR Part 1926. It should be noted that utility trench excavations have the potential to degrade the properties of the adjacent fill materials. Utility trench walls that are allowed to move laterally can lead to reduced bearing capacity and increased settlement of adjacent structural elements and overlying slabs.

Backfill for utility trenches is as important as the original subgrade preparation or structural fill placed to support either a foundation or slab. Therefore, it is imperative that the backfill for utility trenches be placed to meet the project specifications for the structural fill of this project. PSI recommends that Low Strength Mortar (LSM) be utilized for utility trench backfill. If on-site soils are placed as trench backfill, the backfill for the utility trenches should be placed in four (4) to six (6) inch loose lifts and compacted to a minimum of 98% of the maximum dry density achieved by the standard Proctor test. The backfill soil should be moisture conditioned to be within 2% of the optimum moisture content as determined by the standard Proctor test. Up to four (4) inches of bedding material placed directly under the pipes or conduits placed in the utility trench can be compacted to the 98% compaction criteria with respect to the standard Proctor. Compaction testing should be performed for every 200 cubic yards of backfill place or each lift within 200 linear feet of trench, which ever is less. Backfill of utility trenches should not be performed with water standing in the trench. If granular material is used for the backfill of the utility trench, the granular material should have a gradation that will filter protect the backfill material from the adjacent soils. If this gradation is not available, a geosynthetic non-woven filter fabric should be used to reduce the potential for the migration of fines into the backfill material. Granular backfill material shall be compacted to meet the above compaction criteria. The clean granular backfill material should be compacted to achieve a relative density greater than 75% or as specified by the geotechnical engineer for the specific material used.

4.6 Below-Grade Structures

Below-grade structures should be designed to resist lateral earth pressures. Lateral earth pressure is developed from the soils present within a wedge formed by the vertical below-grade wall and an imaginary line extending up and away from the bottom of the wall at an approximate 45° angle. The lateral earth pressures are determined by multiplying the vertical applied pressure by the appropriate lateral earth pressure coefficient K . If the walls are rigidly attached to the structure and not free to rotate or deflect at the top, PSI recommends designing the walls for the "at-rest" lateral earth pressure condition using K_0 . Walls that are permitted to rotate and deflect at the top can be designed for the active lateral earth pressure condition using K_a .

Passive pressure can be determined using K_p , with a factor of safety of 2.0. Recommended parameters for use in below grade walls are as follows:

Preliminary Below-Grade Wall Design Parameters

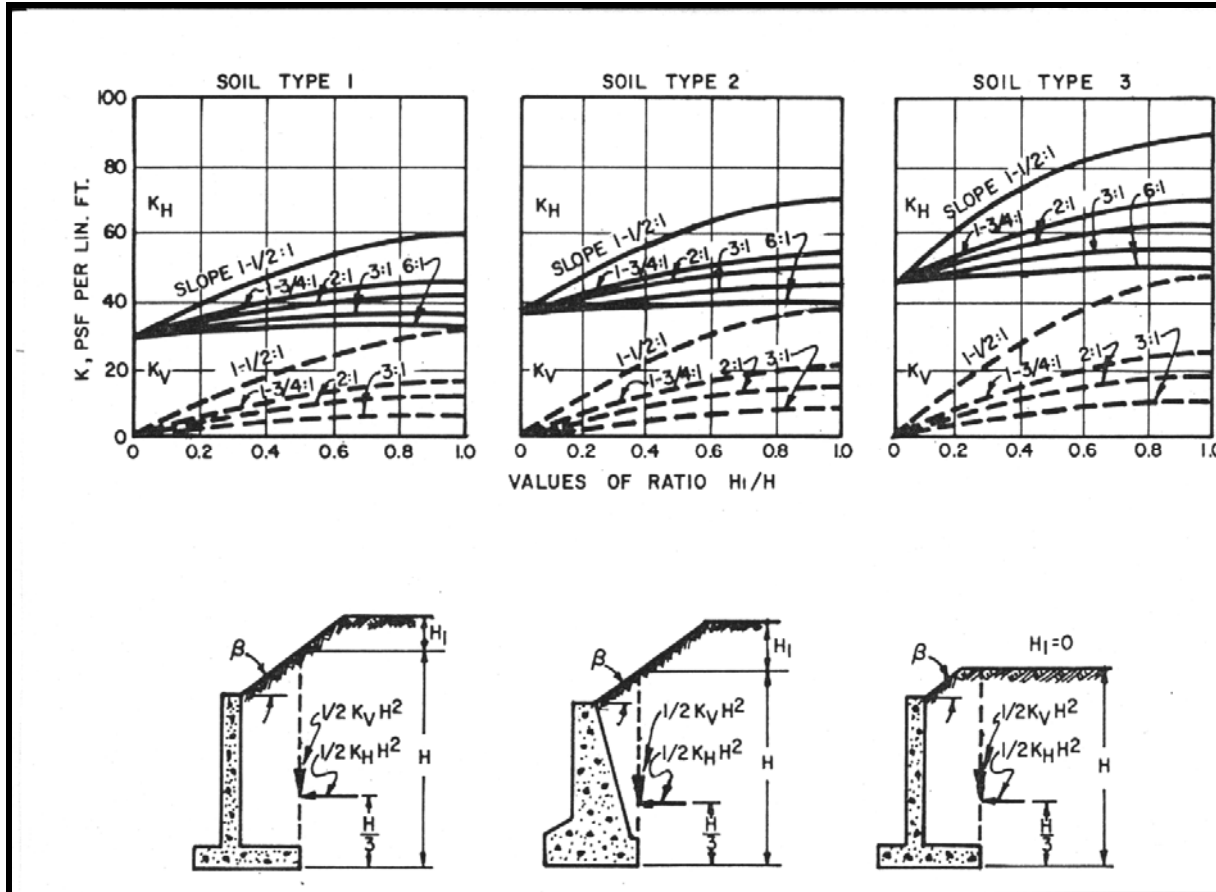
Material Type	Saturated Unit Weight (pcf)	Shear Strength (psf)	Angle of Internal Friction (Degrees)	Active Earth Pressure Coefficient (K_a)	Passive Earth Pressure Coefficient (K_p)	At-Rest Earth Pressure Coefficient (K_o)
Select Granular Fill	120	-	34	0.28	3.54	0.44
Sandy Lean Clay (CL)	115	1500	15	0.59	1.70	0.74
Silty Sand (SM)	100	-	36	0.41	3.85	0.26

* Earth pressure coefficients are based upon the angle of internal friction only. The coefficients assume that the grades are level and does not account for wall friction. Sloping ground surfaces and surcharge loads need to be considered in the design

The values presented above were calculated based on positive foundation drainage is provided to prevent the buildup of hydrostatic pressure. If surface loads are placed near the walls, such as traffic loads, they should be designed to resist an additional uniform lateral load of one-half of the vertical surface loads. An "equivalent fluid" pressure can be obtained from the above chart by multiplying the appropriate K-factor times the total unit weight of the soil. This applies to unsaturated conditions only. If a saturated "equivalent fluid" pressure is needed, the effective unit weight (total unit weight minus unit weight of water) should be multiplied times the appropriate K-factor and the unit weight of water added to that resultant. However, PSI does not recommend that earth retaining walls be designed with a hydrostatic load and that drainage should be provided to relieve the pressure.

In specific design cases where water is allowed to build up on the below-grade wall structure, the hydrostatic load correlating to the maximum height of the water build up should be added to the lateral loads acting on the wall.

The designs of below grade walls need to take into account the effects of geometry and loading conditions. The following charts have been included from NAVFAC 7.02 concerning slopes in the grade at the top of below grade wall. Depending on the geometry of the site, the lateral loading on the below grade wall should be modified according to these charts.



Soil Type 1 – Clean Sand and Gravel, GW, GP, SW, SP

Soil Type 2 – Dirty Sand and Gravel of Restricted Permeability, GM, GM-GP, SM-SP, SM

Soil Type 3 – Stiff Residual Silts and Clays, Silty Fine Sands, Clayey Sands and Gravels: CL, ML, CH, MH, SM, SC, GC

4.7 Below-Grade Structure Wall Back-Drain

PSI recommends that the retaining wall be adequately water-proofed and be provided with a wall back-drain system. One possible drainage system is shown in the sketch below and would include:

- 1) A four (4) or six (6) inch diameter perforated drain tile at the bottom of the backfill to collect seepage water with the tile connected to a suitable means of disposal.
- 2) Clean ½ inch or one (1) inch gravel classified as "GP" and containing less than 5% passing a #200 sieve surrounding the drain tile.
- 3) Non-woven four (4) ounce per square yard geotextile between the drainage material and the on-site soils to prevent infiltration of fine grained soils into the drain tile, granular drainage blanket, or granular backfill.

As an alternative, a geocomposite drain material can be placed between the retaining wall and the backfill soils. Underdrains, sub-drains and underslab drains presented in this report will not prevent moisture vapor that can cause mold growth.

The placement of a limited amount of granular material behind a below-grade wall does not appreciably change the coefficient of lateral earth pressure acting on that wall. The lateral earth

pressure acting on a below-grade structure is a function of the weight of the soil that exists above the theoretical plane projecting up from the base of the wall. The soil above this plane is held in place by two forces, the strength of the soil itself and the lateral resistance of the below-grade wall. Therefore, a thin layer of granular material behind the wall is of little consequence on the forces acting on the wall.

4.8 Below-Grade Structure Wall Backfill and Compaction

Backfill of the proposed below-grade walls may consist of low plastic soils or granular material. PSI suggests using granular material to provide improved drainage and to reduce lateral pressures on the walls resulting from water pressure. The backfill materials should be placed in lifts that do not exceed 8-inches loose. The lift thickness may need to be reduced to thinner lifts immediately behind the walls to achieve the desired amount of compaction without overstressing the wall with the compaction process.

Backfill should be placed in thin lifts and mechanically compacted to at least 98% of the materials' maximum dry density and within 2% of the optimum water content as determined by the standard Proctor test. PSI advises performing field density tests on the backfill to monitor compliance with the recommendations provided. Care should be exercised during the backfilling operation to prevent overstressing and damaging the walls.

Where the distance between the proposed structure walls and the temporary retaining wall system do not allow for traditional backfilling methods, the annular space may be filled with clean gravel (#57) or controlled low strength mortar (CLSM).

4.1 Temporary Slopes and Retaining Walls

In accordance with OSHA Regulation 29 CFR Part 1926, temporary slopes at this site should not exceed steeper than a ratio of three-quarter ($\frac{3}{4}$) horizontal to one (1) vertical for stiff lean clays (type A soils) and one and one-half ($1\frac{1}{2}$) horizontal to one (1) vertical for type A over type C soils where workers or equipment will occupy space at the toe or where the movement of the excavated slope will jeopardize the stability of an adjacent structure. The contractor's competent person shall determine actual soil and groundwater conditions and determine the safe slope conditions.

The naturally occurring existing soils should be prepared and fill placed in accordance with the previously described structural fill guidelines. A representative of the geotechnical engineer should monitor the benching and fill placement operations. The following table briefly shows excavation options for soils encountered at this site.

Where the proposed excavation is in excess of 20 vertical feet, a temporary retaining structure will be required. The retaining structure should extend an adequate distance below the proposed excavation to prevent soil heaving and piping. Minimum required embedment depths should be determined by the design engineer.

Where the water table is not lowered below the excavation, PSI recommends that below grade structures be adequately water-proofed to prevent seepage and dewatering systems be installed. A minimum thickness of 12 inches granular layer should be placed behind the wall in order to drain water to sump areas in case water seepage cannot be completely avoided.

If water is allowed to build up on the below-grade wall, the hydrostatic load correlating to the maximum height of the water build up should be added to the lateral loads acting on the wall. If the water table is lowered below excavation bottoms, proper drainage behind the wall should be assured.

5.0 CONSTRUCTION CONSIDERATIONS

PSI should be retained to provide observation and testing of construction activities involved in the foundation, earthwork, and related activities of this project. PSI cannot accept responsibility for conditions that deviate from those described in this report, nor for the performance of the foundation system if not engaged to also provide construction observation and testing for this project.

5.1 Moisture Sensitive Soils/Weather Related Concerns

The upper fine-grained soils encountered at this site are expected may be sensitive to disturbances caused by construction traffic and to changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in the soil strength and support capabilities. In addition, soils that become wet may be slow to dry and thus significantly retard the progress of grading and compaction activities. It will, therefore, be advantageous to perform earthwork and foundation construction activities during dry weather.

5.2 Drainage and Groundwater Considerations

PSI recommends that the Contractor determine the actual groundwater levels at the site at the time of the construction activities to assess the impact groundwater may have on construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of collected rainwater, groundwater, or surface runoff.

Dewatering will be required if excavations are planned in excess of 22 feet.

It is possible that seasonal variations will cause fluctuations or a water table to be present in the upper soils. Should excessive and uncontrolled amounts of seepage occur, the Geotechnical engineer should be consulted.

5.3 Excavations

In Federal Register, Volume 54, Number 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, part 1926, Subpart P". This document was issued to better enhance the safety of workers entering trenches or excavations. It is mandated by this federal regulation that excavations, whether they be utility trenches, basement excavation or footing excavations, be constructed in accordance with the new OSHA guidelines. It is PSI's understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person", as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety

procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

PSI is providing this information solely as a service to our client. PSI does not assume responsibility for construction site safety or the contractor's or other parties' compliance with local, state, and federal safety or other regulations.

6.0 GEOTECHNICAL RISK

The concept of risk is an important aspect of the geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. The analytical tools which geotechnical engineers use are generally empirical and must be used in conjunction with engineering judgment and experience. Therefore, the solutions and recommendations presented in the geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and the proposed structure will perform as planned. The engineering recommendations presented in the preceding section constitutes PSI's professional estimate of those measures that are necessary for the proposed structure to perform according to the proposed design based on the information generated and referenced during this evaluation, and PSI's experience in working with these conditions.

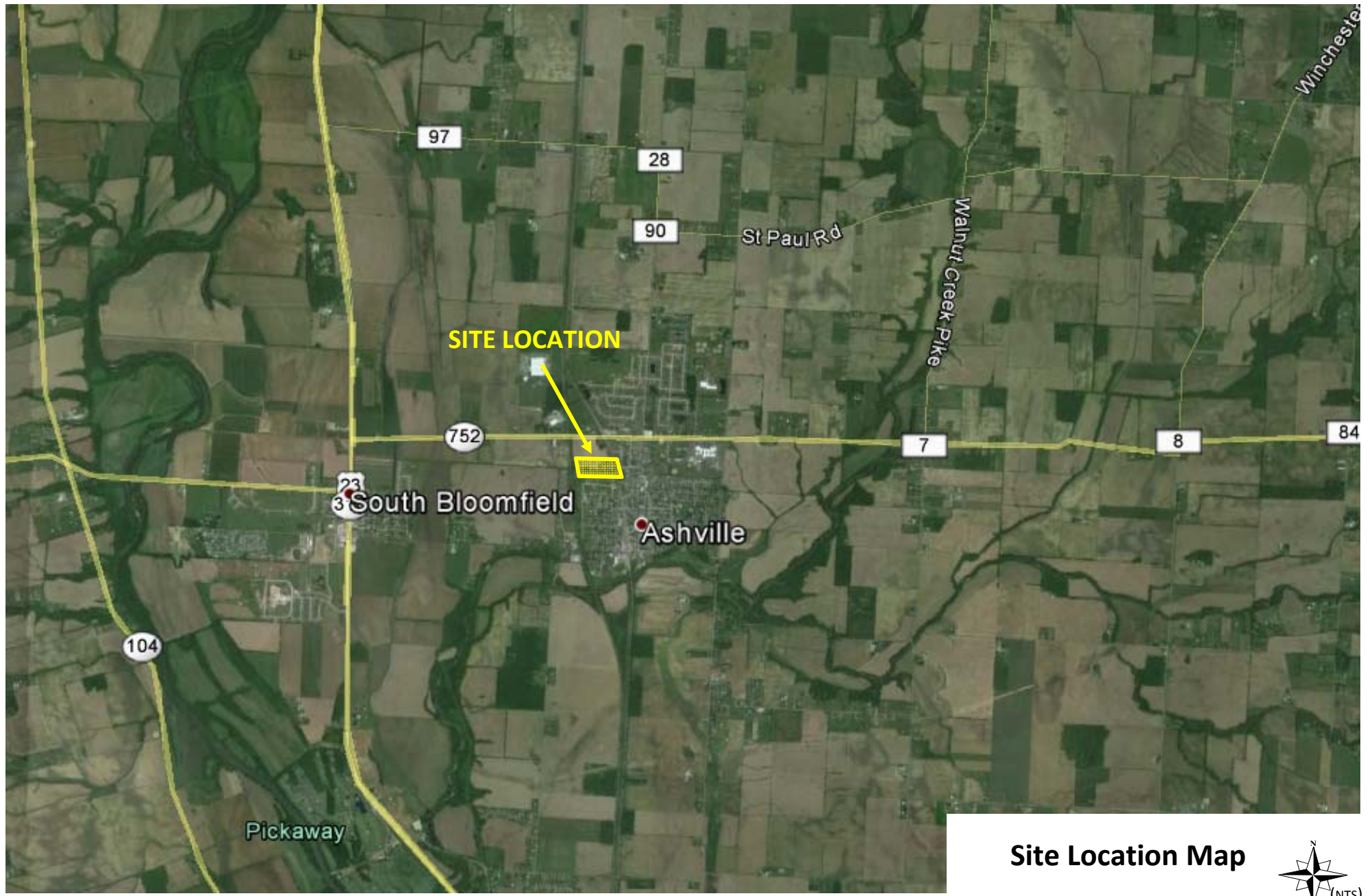
7.0 REPORT LIMITATIONS

The preliminary recommendations submitted are based on the available subsurface information obtained by PSI and preliminary design information furnished by URS Corporation. If there are revisions to the plans for this project or if deviations from the subsurface conditions noted in this report are encountered during construction, PSI should be notified immediately to determine if changes in the foundation recommendations are required. If PSI is not retained to perform these functions, PSI will not be responsible for the impact of those conditions on the project.

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

After the plans and specifications are more complete, the geotechnical engineer should be retained and provided the opportunity to review the final design plans and specifications to check that our engineering recommendations have been properly incorporated into the design documents. At that time, it may be necessary to submit supplementary recommendations. This report has been prepared for the exclusive use of URS Corporation for the specific application to the proposed new Waste Water Treatment Plant located in Ashville, Pickaway County, Ohio.

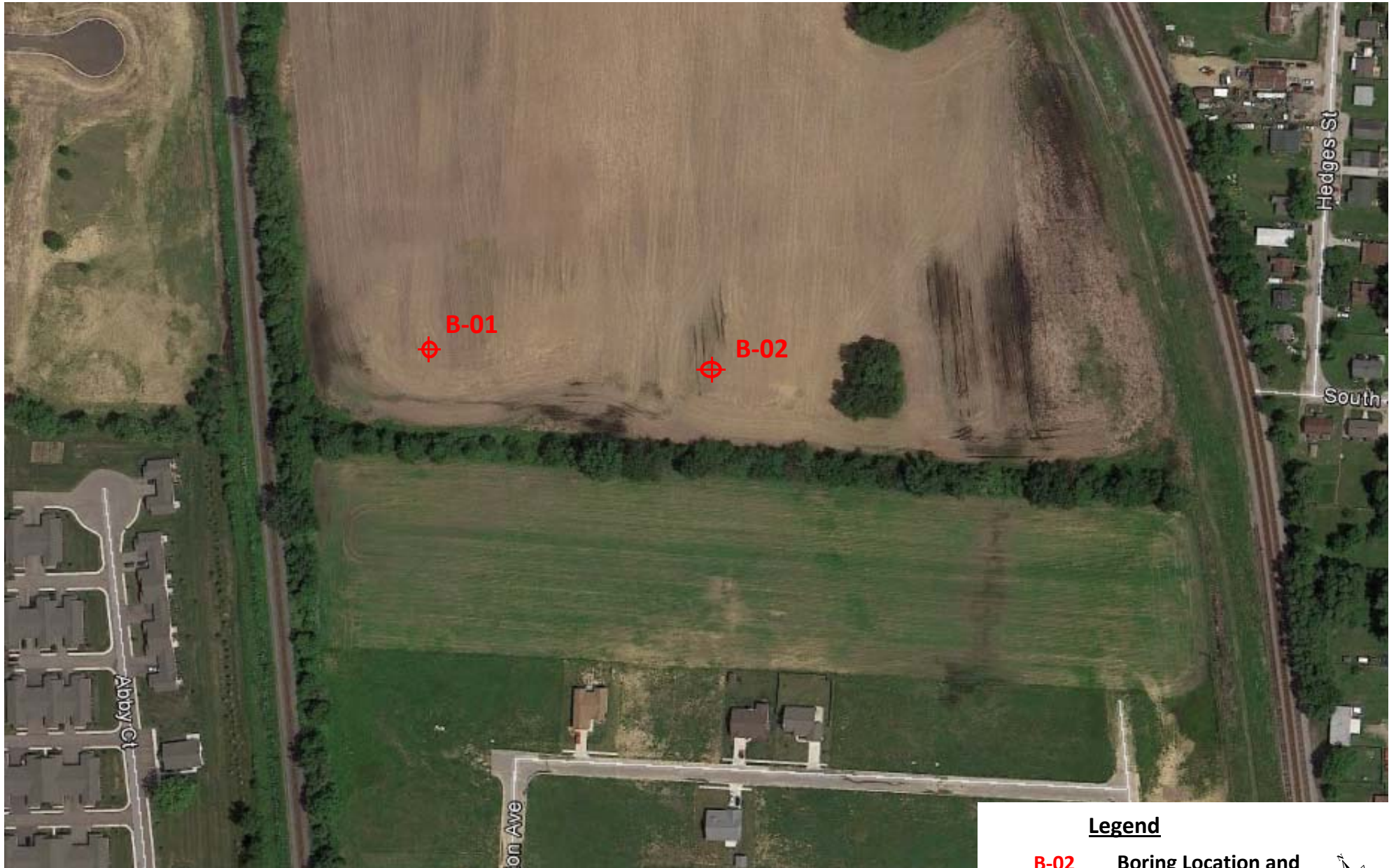
Appendix



Note: Base Map Provided by Google Earth, Altered for PSI use.

Site Location Map





Boring Location Plan

Legend



B-02

Boring Location and
Number



Note: Base Map Provided by Client and Google Earth, Altered for PSI use.

PSI Information
To Build On
Engineering • Consulting • Testing

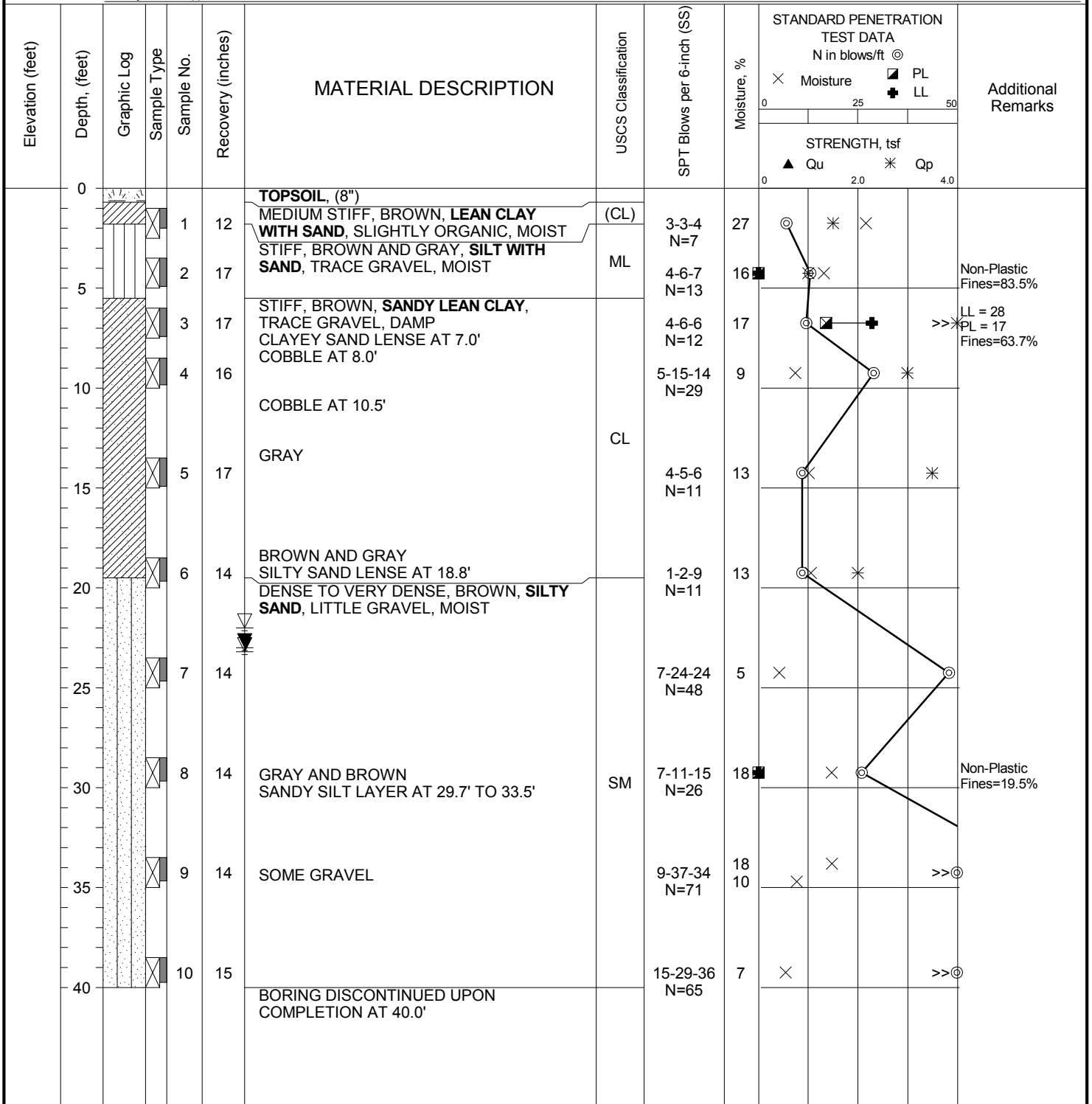
New Waste Water Treatment Plant
Village of Ashvill, Pickaway County, Ohio
PSI Project No.: 0102592

DATE STARTED: 11/14/13 **DRILL COMPANY:** PSI, Inc.
DATE COMPLETED: 11/14/13 **DRILLER:** J.E. **LOGGED BY:** J.E.
COMPLETION DEPTH: 40.0 ft **DRILL RIG:** CME 45 C ATV 2007
BENCHMARK: N/A **DRILLING METHOD:** Hollow Stem Auger
ELEVATION: N/A **SAMPLING METHOD:** 2-in SS
LATITUDE: 39.72103° **HAMMER TYPE:** Automatic
LONGITUDE: -82.95898° **EFFICIENCY:** 88%
STATION: N/A **OFFSET:** N/A **REVIEWED BY:**
REMARKS: Soil symbol in () = Visual Classification

BORING B-01

Water	▽ While Drilling	22.0 feet
	▼ Upon Completion	23.0 feet
	▽ Caved	23.2 feet

BORING LOCATION:



Professional Service Industries, Inc.
 4960 Vulcan Ave, Suite C
 Columbus, OH 43228
 Telephone: (614) 876-8000

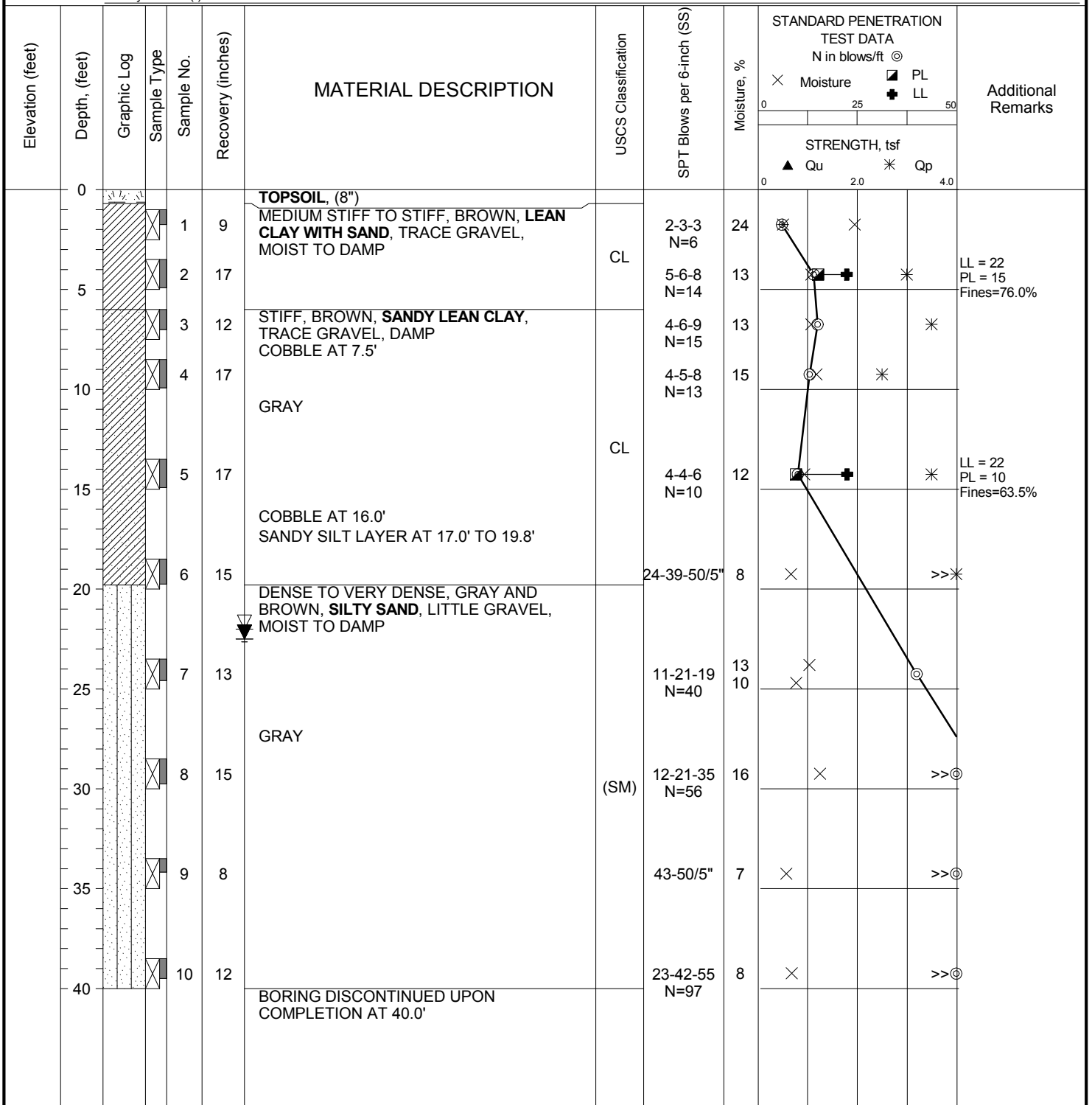
PROJECT NO.: 0102592
PROJECT: Proposed WWTP
LOCATION: South of SR 752
 Village of Ashville, Ohio

DATE STARTED: 11/14/13 **DRILL COMPANY:** PSI, Inc.
DATE COMPLETED: 11/14/13 **DRILLER:** J.E. **LOGGED BY:** J.E.
COMPLETION DEPTH: 40.0 ft **DRILL RIG:** CME 45 C ATV 2007
BENCHMARK: N/A **DRILLING METHOD:** Hollow Stem Auger
ELEVATION: N/A **SAMPLING METHOD:** 2-in SS
LATITUDE: 39.72113° **HAMMER TYPE:** Automatic
LONGITUDE: -82.9603° **EFFICIENCY:** 88%
STATION: N/A **OFFSET:** N/A **REVIEWED BY:** _____
REMARKS: Soil symbol in () = Visual Classification

BORING B-02

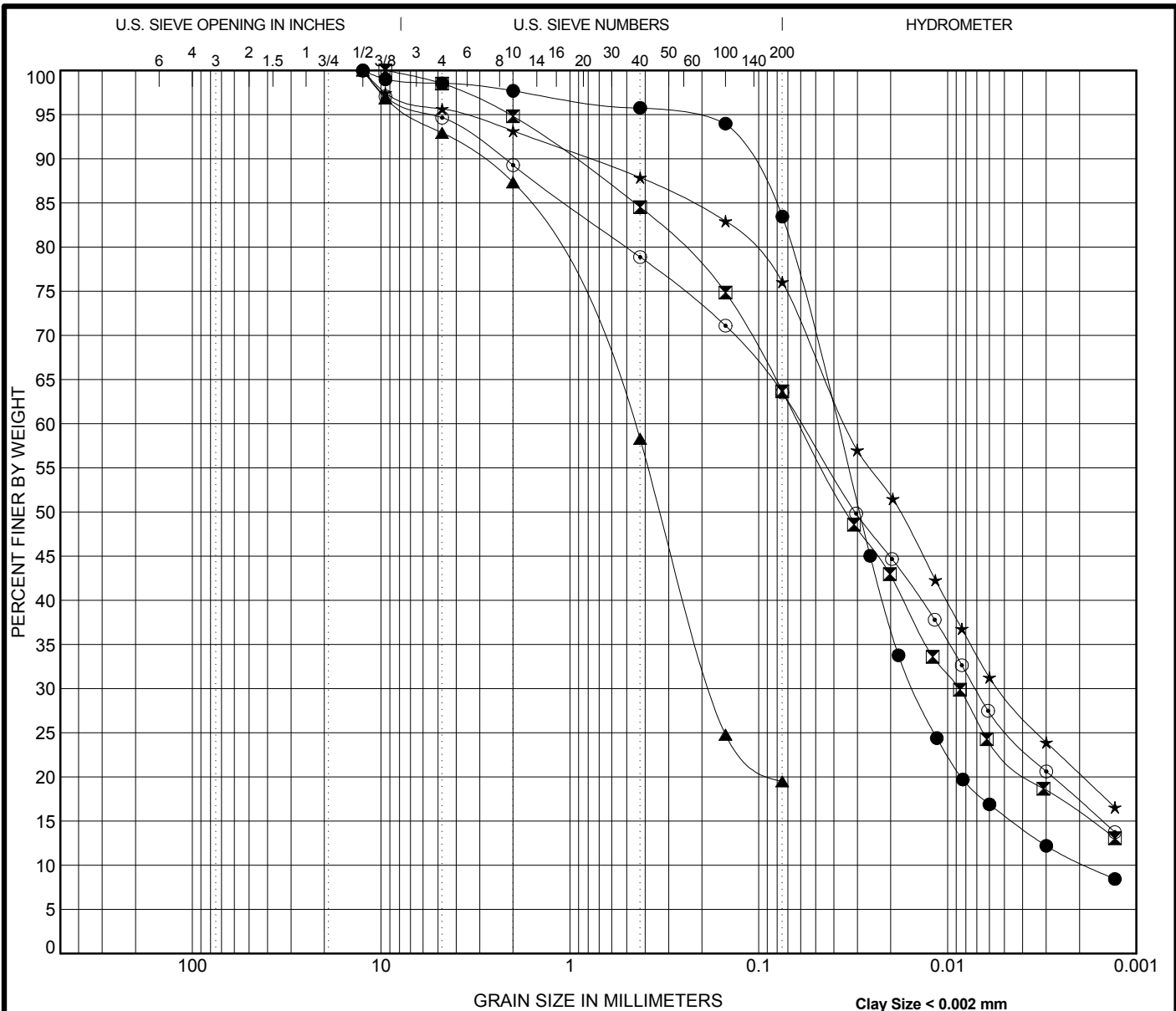
Water	▽	While Drilling	22.0 feet
	▼	Upon Completion	22.5 feet
	▽	Caved	22.5 feet

BORING LOCATION: _____



Professional Service Industries, Inc.
 4960 Vulcan Ave, Suite C
 Columbus, OH 43228
 Telephone: (614) 876-8000

PROJECT NO.: 0102592
PROJECT: Proposed WWTP
LOCATION: South of SR 752
 Village of Ashville, Ohio



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	LL	PL	PI	Cc	Cu
● B-01 4.3	Silt with Sand (ML)	NP	NP	NP	3.17	21.21
☒ B-01 6.8	Sandy Lean Clay (CL)	28	17	11		
▲ B-01 29.3	Silty Sand (SM)	NP	NP	NP		
★ B-02 4.3	Lean Clay with Sand (CL)	22	15	7		
⊙ B-02 14.3	Sandy Lean Clay (CL)	22	10	12		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-01 4.3	12.5	0.039	0.015	0.002	1.5	15.1	73.1	10.4
☒ B-01 6.8	9.5	0.061	0.009		1.5	34.8	47.8	15.9
▲ B-01 29.3	12.5	0.466	0.176		7.1	73.4		19.5
★ B-02 4.3	12.5	0.035	0.005		4.4	19.6	55.7	20.3
⊙ B-02 14.3	12.5	0.059	0.007		5.3	31.1	46.3	17.3



Professional Service Industries, Inc.
 4960 Vulcan Ave, Suite C
 Columbus, OH 43228
 Telephone: (614) 876-8000
 Fax: (614) 876-0548

GRAIN SIZE DISTRIBUTION

Project: Proposed WWTP
 PSI Job No.: 0102592
 Location: South of SR 752
 Village of Ashville, Ohio

GENERAL NOTES

SAMPLE IDENTIFICATION

The Unified Soil Classification System is used to identify the soil unless otherwise noted.

SOIL PROPERTY SYMBOLS

- N: Standard "N" penetration: Blows per foot of a 140-pound hammer falling 30 inches on a 2-inch O.D. split-spoon.
- q_u: Unconfined Compressive Strength, tsf
- q_p: Penetrometer Value, Unconfined Compressive Strength, tsf
- w_c: Water Content, %
- LL: Liquid Limit, %
- PI: Plasticity Index, %
- δ_d: Natural Dry Density, pcf
- ∇: Apparent Groundwater Level at time noted after completion of boring.

DRILLING AND SAMPLING SYMBOLS

- SS: Split-Spoon – 1-3/8" I.D., 2" O.D., except where noted.
- ST: Shelby Tube – 3" O.D., except where noted.
- AU: Auger Sample
- DB: Diamond Bit
- CB: Carbide Bit
- WS: Washed Sample

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION







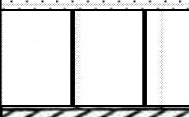


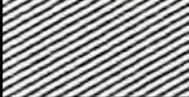
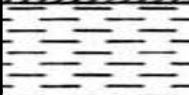



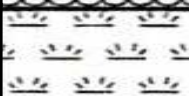
<u>TERM (NON-COHESIVE SOILS)</u>	<u>STANDARD PENETRATION RESISTANCE</u>
Very Loose	0 – 4
Loose	4 – 10
Medium	10 – 30
Dense	30 – 50
Very Dense	Over 50

<u>TERM (COHESIVE SOILS)</u>	<u>q_u – (tsf)</u>
Very Soft	0 – 0.25
Soft	0.25 – 0.50
Firm (Medium)	0.50 – 1.00
Stiff	1.00 – 2.00
Very Stiff	2.00 – 4.00
Hard	4.00 +

PARTICLE SIZE (ASTM D-2487 AND D-422)

Boulders	≥12 in. (300mm)	Medium Sand	<2mm (#10 sieve) to 425µm (#40 sieve)
Cobbles	<12 in. (300mm) to 3 in. (75mm)	Fine Sand	<425µm (#40 sieve) to 75µm (#200 sieve)
Gravel	<3 in. (75mm) to 4.75mm (#4 sieve)	Silt	<75µm (#200 sieve) to 5µm
Coarse Sand	<4.75mm (#4 sieve) to 2mm (#10 sieve)	Clay	<5µm

SOIL CLASSIFICATION CHART

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

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

Subsurface Exploration Report
of
Water Resource Recovery Facility (WRRF)
Village of Ashville, Pickaway County, Ohio

Prepared for

URS Corporation
277 West Nationwide Boulevard
Columbus, Ohio 43215

Prepared by

Professional Service Industries, Inc.
4960 Vulcan Avenue
Columbus, OH 43228

Report Date: July 17, 2014

PSI Project No. 0102671

July 17, 2014

URS Corporation
277 West Nationwide Boulevard
Columbus, OH 43215

Attn: Mr. Jeffrey Kerr, P.E.

**Re: Subsurface Exploration Report
Water Resource Recovery Facility (WWRF)
Village of Ashville, Pickaway County, Ohio
URS Project Number: 14578119
PSI Project Number: 0102671**

Dear Mr. Kerr:

Thank you for choosing Professional Service Industries, Inc. (PSI) as your consultant for the referenced project. Per your authorization, PSI has completed a geotechnical engineering study for the referenced project. The results of the study are discussed in the accompanying report, one (1) copy of which is enclosed.

If you have any questions pertaining to this report, please contact our office at (614) 876-8000. PSI would be pleased to continue providing geotechnical services throughout the implementation of the project, and we look forward to working with you and your organization on this and future projects.

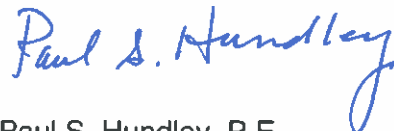
Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.



Matthew A. Archer, E.I
Staff Engineer

MA/PSH/ma

Enclosures



Paul S. Hundley, P.E.
Regional Engineer



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1.0 PROJECT INFORMATION

1.1 Project Authorization

The following table summarizes, in chronological order, the Project Authorization History for the services performed and represented in this report by Professional Service Industries, Inc. (PSI).

Document and Reference	Date	Requested/Provided By
Request for Proposal	04/17/2014	Jeffrey Kerr, URS
PSI Proposal No.: 102-122141	04/25/2014	John XU, Paul Hundley & Michael Mazzoli, PSI Inc.
Project Authorization	05/05/2014	Michael Frommer, URS

1.2 Project Description

According to the RFP and project documents provided, it is PSI's understanding that the project involves design and construction a new Water Resource Recovery Facility (WRRF) located on a 10 acre parcel, south of SR 752 in the Village of Ashville, Pickaway County, Ohio. The proposed structures and approximate footing excavation depths are as follows:

- Influent pump station (682.00')
- Headworks building (711.50')
- Aerobic Digester (696.00')
- Oxidation Ditch (703.00')
- Clarifiers (696.00')
- RAS/WAS Pump Station (696.00')
- UV Disinfection (693.50')
- Post Aeration (710.00')
- Biosolids Handling & Blower Building (706.50')

In addition, a new pump station is planned at the existing WWTP in the Village of Ashville. The proposed footing excavation depth is planned to be at approximately 681.00'

The new buildings will be one-story construction supported by masonry bearing walls. Limited "cut and fill" of existing site grade is anticipated, with regards to the proposed structures.

The following table lists the material and information provided for this project:

DESCRIPTION OF MATERIAL	PROVIDER/SOURCE	DATE
Request for Proposal for Geotechnical Services	URS	04/17/2014
Standard Conditions for Soils Engineer for Soil Investigation and Engineering Services	URS	04/17/2014
Geotechnical RFP Location Map	URS	04/17/2014
Soil Boring Layout SB1 & SB 2 (Drawn by URS; dated 03/07/2014)	URS	04/17/2014
Revised Soil Boring Layout SB1	URS	05/02/2014
Preliminary Subsurface Exploration Report (PSI Project No.: 0102592; dated 12/06/2013)	PSI	12/06/2013

The geotechnical recommendations presented in this report are based on the available project information for the proposed WWRF located in the Village of Ashville, Pickaway County, Ohio and the subsurface materials described in this report. If any of the information noted above is incorrect, please inform PSI in writing so that we may amend the recommendations presented in this report if appropriate and if desired by the client. PSI will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

1.3 Purpose and Scope of Services

The purpose of this study was to explore the subsurface conditions at the site to prepare preliminary foundation and excavation recommendations for the proposed construction. PSI's contracted scope of services included drilling nine soil test borings, to depths ranging from approximately 25 to 40 feet below the ground surface, select laboratory testing, and preparation of this geotechnical report. The geotechnical exploration was planned according to the request of the client to provide opinions and preliminary recommendations for foundation design. This report briefly outlines the testing procedures, presents available project information, describes the site and subsurface conditions, and presents recommendations regarding the following:

- A general assessment of area geology based on our local knowledge and study of available geological literature;
- General location, description of materials encountered in the borings which may interfere with construction progress or structure performance, including existing fills, cobbles/boulders, or organic soils;
- Identification of water levels encountered at the time of drilling and recommendations for dewatering if required;
- Recommendations for fill including the selection of materials for use and procedures for placement;
- Foundation system evaluations and the assessment of the feasibility of utilizing shallow foundations;
- Design parameters required for the foundation system, including allowable bearing

pressure, minimum foundation width, and foundation bearing levels;

- Site preparation as needed for support of foundations and floor slabs;
- Recommendations for open cut excavation work to install clarifiers, oxidation ditch, aerobic digesters, UV disinfection tank, and three buildings;
- Identify the swell potential of surface soil based on the laboratory index tests, and provide recommendations, if any, for potentially swelling soils;
- Recommendations, with attachments including a boring location drawing, and computer generated boring logs.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface water, groundwater, or air on, below, or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes.

PSI's scope also did not provide any service to investigate or detect the presence of moisture, mold or other biological contaminants in or around any structure, or any service that was designed or intended to prevent or lower the risk of the occurrence or the amplification of the same. Client should be aware that mold is ubiquitous to the environment with mold amplification occurring when building materials are impacted by moisture. Client should be aware that site conditions are outside of PSI's control, and that mold amplification will likely occur, or continue to occur, in the presence of moisture. As such, PSI cannot and shall not be held responsible for the occurrence or reoccurrence of mold amplification.

2.0 SITE AND SUBSURFACE CONDITIONS

2.1 Site Location and Description

Proposed WRRF

The site for the new WRRF is located on a 10 acre parcel, south of SR 752 in the Village of Ashville, Pickaway County, Ohio. The site latitude and longitude is approximately N 39.720880° and 82.959539° W respectively. The approximate site locations are depicted on the "Site Location Map" in the Appendix.

The site is bordered by SR 752 to the north, rail road track to the east, residential housing to the south, and a tree line and rail road tracks to the west.

The site is located in an existing agricultural field. Ground cover at the time of our drilling operations consisted of soft topsoil and organic debris.

Site topographic information was provided to PSI indicating elevations ranging from approximately 707 to 715 feet (MSL) across the site.

Existing WWTP

The existing WWTP is located at 62 Scioto Street in the Village of Ashville, Pickaway County, Ohio. The site latitude and longitude is approximately N 39.711059° and 82.958597 ° W respectively. The approximate site locations are depicted on the “Site Location Map” in the Appendix.

The site is bordered by residential properties to the north and east, an open field to the south, and a tree line and rail road tracks to the west.

The site is located in the existing WWTP. Ground cover at the time of our drilling operations consisted of grass and organic debris.

Site topographic information was provided to PSI indicating the elevation of the boring at 689 feet (MSL).

2.2 Site Geology

Based on the geologic map published by the Ohio Geological Survey, the site lies within the Columbus Lowland. Geology consists of loamy, high-lime (west) to medium-lime (east) Wisconsinan-age till and extensive outwash in Scioto River Valley over deep Devonian- to Mississippian-age carbonate rocks, shales, and siltstones.

Information obtained from the Ohio Department of Natural Resources (ODNR) website also indicated that no known abandoned mine was recorded in the vicinity of the site area. “Known and Probable Karst in Ohio” map published by ODNR indicates that no Karst (sink hole) is recorded in the vicinity of the project site.

2.3 Subsurface Conditions

The subsurface conditions at the proposed WRRF were explored with ten soil test borings, advanced to depths ranging from approximately 25 to 40 feet below the existing grade. Test borings B-01 and B-02 were performed during the preliminary subsurface exploration on November 24th, 2013. Test borings B-11 through B-18, performed for this subsurface exploration, were advanced between May 14th and 16th, 2013.

The subsurface conditions at the existing WWTP were explored with one soil test boring advanced to a depth of approximately 40 feet below the existing grade on May 14th, 2014.

The boring locations/depths were selected by URS Corporation and were staked in the field by URS Corporation personnel. The approximate boring locations are depicted on the, “Boring Location Plan” in the Appendix.

The borings were advanced utilizing 3¼ inch inside diameter, hollow stem auger drilling methods. Soil samples were routinely obtained during the drilling process. Selected soil samples were later tested in the laboratory to obtain soil material properties for the preliminary foundation open cut excavation recommendations. Drilling, sampling, and laboratory testing were accomplished in general accordance with ASTM procedures.

The subsurface descriptions presented below are of a generalized nature to highlight the major subsurface stratification features and material characteristics. The boring logs included in the Appendix should be reviewed for specific information at individual boring locations. These records include soil/rock descriptions, stratifications, penetration resistances, and locations of the samples and laboratory test data. The stratifications shown on the boring logs represent the conditions only at the actual boring locations. Variations may occur and should be expected between boring locations. The stratifications represent the approximate boundary between subsurface materials and the actual transition may be gradual. Water level information obtained during field operations is also shown on these boring logs. The samples that were not altered by laboratory testing will be retained for 60 days from the date of this report and then will be discarded.

Proposed WRRF

Subsurface conditions were found to be similar to the conditions encountered during PSI's preliminary subsurface exploration (boring logs included in Appendix).

Topsoil was encountered at the surface of all borings ranging in thickness from 7 to 10 inches.

Glacial soils generally encountered below topsoil consisted fine-grained lean clays in the upper 18 to 21 feet followed by coarse-grained sands to termination depths. Fine-grained soils predominately consisted of sandy lean clays (CL), lean clays with sand (CL), fat clays with sand (CH), silt with sand (ML) and sandy silt (ML). The standard penetration N-values within these fine-grained soils generally indicates consistencies of "medium stiff" to "very stiff." Moisture contents of these soils ranged from 8 to 29 percent. Coarse-grained sands predominately consisted of Silty Sands (SM). The standard penetration N-values within these coarse-grained soils generally indicates consistencies of "medium dense" to "very dense." Moisture contents of these soils ranged from 5 to 18 percent.

The following table briefly summarizes the range of results from the field and laboratory testing programs. Please refer to the attached boring logs and laboratory data sheets for more specific information:

SUMMARY OF SPT N VALUES, MOISTURE CONTENT & GROUND WATER LEVELS

Top of Soil Sampling Depth (ft)	SPT N Values (blows/ft)											Top of Soil Sampling Depth (ft)	Moisture Content (%)										
	B-01	B-02	B-11	B-12	B-13	B-14	B-15	B-16	B-17	B-18	Average		B-01	B-02	B-11	B-12	B-13	B-14	B-15	B-16	B-17	B-18	Average
1.0	7	6	7	6	7	5	7	7	8	7	7	1.0	27	24	25	16	29	27	19	23	25	21	24
3.5	13	14	15	11	7	12	10	15	11	12	12	3.5	16	13	14	17	20	17	20	14	16	14	16
6.0	12	15	9	7	10	9	8	11	13	8	10	6.0	17	13	17	14	18	14	16	15	21	19	16
8.5	29	13	8	14	12	8	22	24	16	14	16	8.5	9	15	17	12	14	13	16	14	11	15	14
13.5	11	10	30	23	15	9	12	15	19	16	16	13.5	13	12	-	9	12	12	10	10	17	11	12
18.5	11	>100	48	41	33	20	29	63	31	51	36	18.5	13	8	10	10	9	11	16	16	11	10	11
23.5	48	40	66	45	45	40	70	78	>100	56	54	23.5	5	13	7	11	5	8	3	6	6	7	7
28.5	26	56	42	22	20	35				40	34	28.5	18	16	10	15	12	9				8	13
33.5	71	>100	>100	38	30	49				90	56	33.5	18	7	7	8	7	11				6	9
38.5	65	97	85	46		55				52	67	38.5	7	8	7	11		8				8	8
Groundwater Level Reading and Borehole Caving Depth (ft)																							
Water Level Encountered While Drilling												22.0	22.0	8.0	3.5	6.3	5.5	-	-	9.8	6.0		
Water Level Reading Encountered Upon Completion												23.0	22.5	23.0	24.1	23.4	24.5	-	-	21.7	21.3		
Caving Depth after Casing Withdrawal												23.2	22.5	8.5	14.7	15.0	15.0	20.2	17.8	10.0	18.5		

Existing WWTP

Approximately 1 inch of topsoil was encountered at the surface of the boring, followed by approximately 10 inches of crushed aggregate fill materials.

Undocumented fill materials were encountered below topsoil and aggregate fill in the upper 7.3 feet during our exploration. These materials were classified as sandy lean clays (CL).

Glacial soils generally encountered below topsoil and fill consisted of fine-grained lean clays in the upper 30 feet followed by coarse-grained sands to termination depths. Fine-grained soils predominately consisted of sandy lean clays (CL) and lean clays (CL). The standard penetration N-values within these fine-grained soils generally indicates consistencies of "medium stiff" to "very stiff." Moisture contents of these soils ranged from 7 to 29 percent. Coarse-grained sands predominately consisted of Silty Sands (SM). The standard penetration N-values within these coarse-grained soils generally indicates consistencies of "medium dense" to "dense." Moisture contents of these soils ranged from 9 to 14 percent.

Please refer to the attached boring logs and laboratory data sheets for more specific information

2.4 Laboratory Test Results

Laboratory testing was performed on representative split- spoon samples obtained during drilling. The laboratory tests included natural moisture content, percent fines, and Atterberg Limits. The laboratory test results are summarized in the table below.

Summary of Laboratory Test Results

Sample Location	Sample Depth (ft)	Moisture Content (%)	Percent Fines (%)	Atterberg Limits			USCS Soil Classification
				LL	PL	PI	
B-01	3.5 - 5.0	16	83.5	NP	NP	NP	ML
B-01	6.0 - 7.5	17	63.7	28	17	11	CL
B-01	28.5 - 30.0	18	19.5	NP	NP	NP	SM
B-02	3.5 - 5.0	13	76.0	22	15	7	CL
B-02	13.5 - 15.0	12	63.5	22	10	12	CL
B-13	1.0 - 2.5	29	83.5	53	23	30	CH
B-17	13.5 - 15.0	17	71.8	19	14	5	CL-ML
B-19	13.5 - 15.0	26	98.4	34	20	14	CL

2.5 Water Level Measurements

The groundwater level at the site, as well as perched water levels and volumes, will fluctuate based on variations in rainfall, snowmelt, evaporation, surface run-off and other related hydrogeologic factors. The water level measurements presented in this report are the levels that were measured at the time of PSI's field activities.

Proposed WRRF

During the preliminary subsurface exploration on November 24th, 2013, groundwater was observed at a depth of approximately 22.0 feet. During the most recent exploration between May 14th and 16th, 2014, groundwater was observed at depths ranging from 18.5 to 22.0 feet. In addition, groundwater seepage and/or perched water was observed at depths ranging from 3.5 to 9.8 feet. Shallow groundwater seepage and/or perched water is most likely the result of the wet weather during spring.

In fine-grained soils such as the lean clays encountered at this site, the water levels in the boreholes are often not representative of the actual groundwater level, because the boreholes remain open for a relatively short time. To obtain Longer-term measurements, it is necessary to install water level observation wells or piezometers. In fine-grained glacial soils, the depth of the soil color change from brown to gray can be an indicator of the prevailing groundwater level. Above the prevailing groundwater level, fine-grained soils oxidize to a brown color. Change in color of soil from brown to gray was observed at a depth ranging from approximately 9.8 to 14 feet in our field investigation.

Existing WWTP

Groundwater was observed in the boring at a depth of approximately 8.0 feet during our field exploration.

In fine-grained soils such as the lean clays encountered at this site, the water levels in the boreholes are often not representative of the actual groundwater level, because the boreholes remain open for a relatively short time. To obtain Longer-term measurements, it is necessary to install water level observation wells or piezometers. In fine-grained glacial soils, the depth of the soil color change from brown to gray can be an indicator of the prevailing groundwater level.

Above the prevailing groundwater level, fine-grained soils oxidize to a brown color. Change in color of soil from brown to gray was observed at a depth of approximately 17.0 feet in our field investigation.

3.0 GEOTECHNICAL EVALUATION

3.1 Geotechnical Discussion

According to our investigation findings, the following key items are highlighted for the project design and construction.

- Natural soils at both sites generally consisted of fine-grained clays and silt in the upper 20 feet followed by coarse-grained sands to termination depths. Majority soil samples encountered on the site had relatively moderately high consistency below 3.0 feet. The natural soils should be capable of supporting the proposed building foundations without major soil improvement according to our test boring findings. A 12 inch layer of crushed stone may be required to stabilize the bearing surface if foundations are planned to bear on silts encountered in the upper 10 feet or silty sands at depths greater than 20 feet. A geotechnical engineer should inspect footing excavations to ensure consistency with the recommended bearing pressure.
- As an alternative to shallow foundations, a raft or mat foundation may be considered. This option may be viable if the total weight and loads of the proposed structure can be supported within the allowable area to sufficiently reduce the mat contact stress. This foundation could consist of structural grade beams in a waffle pattern or a mass slab supported on a layer of engineered fill. PSI should evaluate the feasibility of a raft foundation after the final building and floor loads are known.
- High plasticity "fat" clays were encountered in the majority of the borings at the proposed WRRF site that may expand and shrink thereby impacting the proposed construction especially in the floor slab area. Although fat clays were not encountered in the remainder of the borings, fat clays may be present throughout the site between boring locations. According to our laboratory test result, potential for volume (after moisture content change) is considered to be high. Where these soils are within 24 inches beneath structural features or slabs, remediation is recommended. In severe cases, movement and distress to footings and foundation walls can occur, although a severe case is not obviously apparent at this site. Remedial measures are recommended in select areas of the site to reduce the shrink/swell potential.
- Open cut excavations are anticipated to install the clarifiers, oxidation ditch, aerobic digesters, UV disinfection tank and three buildings. Excavations should be designed and constructed in accordance with the OSHA Regulation 29 CFR Part 1926. Temporary slopes in the upper 20 feet of the soil profile at this site should not exceed steeper than a ratio of three-quarter horizontal to one vertical where workers or equipment will occupy space at the toe.
- Where excavations are planned in excess of 20 feet below the existing grade, a temporary retaining structure will be required. The retaining structure should extend an adequate distance below the proposed excavation to prevent soil heaving and piping.

- Ground water was observed during our field activities at a depths ranging from 18.5 to 22 feet. In addition, perched water was encountered at depths ranging from 3.5 to 9.8 feet. The presence of gray glacial soils at depth ranging from 9.8 to 14 feet is an indication of the static water level; however, these soils are anticipated to have a very low permeability. PSI recommends the water table be lowered a minimum of 2 feet below the excavation bottoms where excavation are planned in excess of 20 feet. Some seepage should be anticipated where excavation extend below 10 feet, but to not penetrate the silty sands encountered below 20 feet. Below grade walls should be adequately water-proofed to prevent seepage. Dewatering systems should be installed where the water table is lowered below the excavation limits for temporary excavations.
- On-site soil cuttings, free of organic or other deleterious materials, may be reused as fill (since the majority of these soil samples are estimated to be low to medium plasticity clay) if the cuttings are tested and meet the project specification. However, soils having maximum particle size greater than three inches, a liquid limit greater than forty and plasticity index greater than twenty should not be used as fill below lightly loaded structures and slabs. Saturated on-site soil cuttings should not be used as fill in the building or pavement areas. Whether or not the cuttings are suitable for reuse should be determined by proper soils tests under the supervision of an experienced civil/geotechnical engineer. PSI can provide the testing services before and during the construction of this project.
- The non-plastic silts encountered throughout the are frost susceptible soil and are difficult to work with when exposed to precipitation. These soils should not be used as fill within the upper 30 inches (frost depth) of the subgrade.
- Since this site contains fine-grained clay soils and relatively high ground water table, it may become difficult to achieve the compaction as required by proof-rolling. The soils may need to be scarified and dried to a moisture content that will facilitate compaction in accordance with the structural fill requirements of this report. Use of geofabric and/or geogrid reinforcement or lime, kiln dust, or fly ash stabilization may be necessary in order to expedite the work and achieve the required level of soil compaction in floor slab areas.

4.0 GEOTECHNICAL RECOMMENDATIONS

The following geotechnical related recommendations have been developed on the basis of the subsurface conditions encountered and PSI's understanding of the proposed development. Should changes in the project criteria occur, a review must be made by PSI to determine if modifications to our recommendations will be required.

4.1 Site Preparation

PSI recommends that topsoil, vegetation, roots, soft, organic, frozen, or unsuitable soils in the building areas be stripped from the site and either wasted or stockpiled for later use in non-structural areas. It should also be noted that it is not unusual for topsoil thickness to vary from these values in the open field. Oftentimes the topsoil can be deeper in low-lying areas, where erosion, wind and precipitation can deposit this material. A minimum width of the undercut areas for footing construction can be estimated as twice the footing width. A representative of the geotechnical

engineer should determine and document the depth of removal at the time of construction.

In this region, these otherwise competent silts and lean clays can undergo a significant loss of stability when construction activities are performed during wetter portions of the year. PSI anticipates that the soils in the project area can become easily disturbed if subjected to conventional rubber tire or narrow track-type equipment. Soils that become disturbed would need to be excavated and replaced; however, this remedial excavation may expose progressively wetter soils with depth, thus compounding the problem condition. Thus, a normal approach to subgrade preparation may not be possible. Appropriate wide-track equipment selection should aid in minimizing potential disturbance.

Highly plastic fat clays should be remediated where they occur within a depth of twenty-four inches beneath proposed slabs or structural features. Removed materials should be replaced with a low plasticity compacted soil or a dense positively-drained graded crushed stone. A representative of PSI's geotechnical engineer should observe the subgrade soils, perform plasticity index tests, and estimate the approximate extent of the exposed fat clays. The geotechnical engineer's representative should observe the remediation procedures for compliance with the project plans and specifications.

After stripping to the proposed subgrade level, a representative of the geotechnical engineer should inspect bearing surfaces to ensure its consistency with the recommendations presented herein. Care should be taken during construction activities not to allow excessive drying or wetting of exposed soils. The subgrade soils should be scarified and compacted to at least 98% of the materials' standard proctor maximum dry density, in general accordance with ASTM procedures, to a depth of at least twelve inches below the surface. New fill should not be placed on frozen ground.

After subgrade preparation and observation have been completed, fill placement required to establish grade may begin. Low-plasticity structural fill materials placed beneath the structural features or slabs should be free of organic or other deleterious materials and have a maximum particle size of less than three inches. Low-plasticity soils are defined as having a liquid limit less than forty and plasticity index less than twenty. The in-situ lean clays can be reused as engineered fill as long they are free of any organic material and meet the requirements outlined in this report. A representative of PSI should be on-site to observe, test, and document the placement of the fill. If the fill is too dry, water should be uniformly applied and thoroughly mixed into the soil by disking or scarifying. Close moisture content control will be required to achieve the recommended degree of compaction. If engineered fill placement must proceed during a wet or cool time of the year, it will likely be infeasible to re-use the on-site soils as engineered fill, and imported fill materials will be required. If wet or cool season earthwork is necessary, PSI recommends the use of imported fill materials meeting the requirements of Ohio Department of Transportation (ODOT) CMS Item 203.

In utility trenches, shallow foundation excavations, and other areas where large compaction equipment cannot be used, granular engineered fill should be placed as backfill. PSI recommends the use of material meeting ODOT CMS Item 703.16.B or 703.16.C, Structure Backfill, for use as granular engineered fill. Engineered fill should be placed in accordance with the recommendations stated in this section of the report.

Fill should be placed in maximum loose lifts of eight inches and compacted to at least 98% of the materials' standard proctor maximum dry density, and within a range of the optimum moisture

content as designated in the table below, as determined in general accordance with ASTM procedures. Each lift of compacted-engineered fill should be tested and documented by a representative of the geotechnical engineer prior to placement of subsequent lifts. The edges of compacted fill should extend a minimum of five feet beyond the building footprint, or a distance equal to the depth of fill beneath the footings, whichever is greater. The measurement should be taken from the outside edge of the footing to the toe of the excavation prior to sloping.

The fill placed should be tested and documented by a geotechnical technician and directed by a geotechnical engineer to evaluate the placement of fill material. It should be noted that the geotechnical engineer of record can only certify the testing that is performed and the work observed by that engineer or staff in direct report to that engineer. The fill should be evaluated in accordance with the following Table:

MATERIAL TESTED	PROCTOR TYPE	MIN % DRY DENSITY	PLACEMENT MOISTURE CONTENT RANGE	FREQUENCY OF TESTING ⁺²
Structural Lean Clay Fill (Cohesive)	Standard	98%	-2 to +2 %	1 per 5,000 ft ² of fill placed / lift
Structural Fill (Granular)	Standard	98%	-2 to +2 %	1 per 5,000 ft ² of fill placed / lift
Random Fill (non load bearing)	Standard	90%	-3 to +3 %	1 per 6,000 ft ² of fill placed / lift
Utility Trench Backfill	Standard	98%	-2 to +2 %	1 per 150 lineal foot / lift

⁺¹ Relative Density as determined in general accordance with ASTM D4253 and D4254. ⁺² Minimum 2 per lift.

Tested fill materials that do not achieve either the required dry density or moisture content range shall be recorded, the location noted, and reported to the Contractor and Owner. A re-test of that area should be performed after the Contractor performs remedial measures.

4.2 Preliminary Foundation Recommendations

The planned construction can be supported on conventional spread-type footing foundations bearing on either competent naturally deposited soils or properly compacted and documented engineered fill provided existing fill materials are removed. **During footing excavations, a geotechnical engineer should inspect the excavation bottoms to ensure its consistency with the recommended bearing pressures.** If it is desired for the planned foundations to bear on properly compacted and documented fill, the geotechnical engineer should be allowed to review the material as to ensure its consistency with the recommended bearing pressures. Based on the two soil borings, spread footings for building columns, continuous footings for bearing walls, can be designed for allowable soil bearing capacity as presented in the tables below. PSI recommends a minimum dimension of thirty inches for square footings and eighteen inches for continuous footings to minimize the possibility of a local bearing capacity failure. A 12 inch layer of crushed stone may be required to stabilize the bearing surface if foundations are planned to bear on silts encountered in the upper 10 feet or silty sands at depths greater than 20 feet.

Allowable Bearing Capacity (WRRF)

Foundation Elevation (ft)	ASTM Soil Classification	Saturated Unit Weight (pcf)	Undrained Shear Strength (psf)	Angle of Internal Friction (Degrees)	Allowable Bearing Capacity (psf)
710	CL	115	1000	-	2000
705	CL	120	1200	-	2400
703	CL	120	1500	-	3000
700	CL	115	1200	-	2600
695	CL	120	1500	-	3300
690	CL	125	2000	-	4500
680	SM	110	-	36	>10000

* Based on dead load plus design live load

Allowable Bearing Capacity (WWTP)

Foundation Elevation (ft)	ASTM Soil Classification	Saturated Unit Weight (pcf)	Undrained Shear Strength (psf)	Angle of Internal Friction (Degrees)	Allowable Bearing Capacity (psf)
685	CL	120	2000	-	4000
680	SC	100	1000	-	2200
675	CL	110	1000	-	2400

* Based on dead load plus design live load

Exterior footings and footings in unheated areas should be located at a depth of thirty-two inches or deeper below the final exterior grade to provide adequate frost protection. If the building is to be constructed during the winter months or if footings will likely be subjected to freezing temperatures after foundation construction, then the footings should be protected from freezing. PSI recommends that interior footings be a minimum depth of eighteen inches below the finished floor elevation.

The foundation excavations should be observed and documented by a representative of PSI prior to steel or concrete placement to assess that the foundation materials are consistent with the materials discussed in this report, and therefore are capable of supporting the design loads. Soft or loose soil zones encountered at the bottom of the footing excavations should be removed to the level of suitable soils, and replaced with adequately compacted structural fill. Fill placed below the foundations where unsuitable materials are removed should extend ½ foot outside the foundation limits for every one foot in thickness between the intended bearing surface and the underlying, suitable natural soils. Alternately, the foundations may be extended through unsuitable soils to bear on the underlying suitable material. Cavities formed as a result of excavation of soft or loose soil zones should be backfilled with lean concrete or dense graded compacted crushed stone.

After opening, footing excavations should be observed and concrete placed as quickly as possible

to avoid exposure of the footing bottoms to wetting and drying. Surface run-off water should be drained away from the excavations and not be allowed to pond. If possible, the foundation concrete should be placed during the same day the excavation is made. If it is required that footing excavations be left open for more than 1 day, they should be protected to reduce evaporation or entry of moisture.

Based on the known subsurface conditions and site geology, laboratory testing and past experience, PSI anticipates that properly designed and constructed footings supported on the recommended materials should experience total and differential settlement between adjacent columns of less than one inch and $\frac{3}{4}$ inch, respectively.

As an alternative, a raft or mat foundation may be considered. This option may be viable if the total weight and loads of the proposed structure can be supported within the allowable area to sufficiently reduce the mat contact stress. This foundation could consist of structural grade beams in a waffle pattern or a mass slab supported on a layer of engineered fill. At least 6 inches of soil should be removed below the floor subgrade elevation and replaced with compacted granular fill. The rigid frame created by the structural grade beams or mass slab would help to reduce differential settlement by distributing the loads. However, placement of underground utilities for the proposed structure may be complicated with this foundation type. PSI should evaluate the feasibility of a raft foundation after the final building and floor loads are known.

Be advised that as a part of the foundation selection process, there is a cost/benefit evaluation. Although PSI is recommending specific foundation types, we have not accomplished the cost/benefit evaluation.

4.3 Earthquake and Seismic Design Consideration

The 2006 International Building Code (IBC) requires a site class for the calculation of earthquake design forces. This class is a function of soil type (i.e., depth of soil and strata types). Based on the depth to rock and the estimated shear strength of the soil at the boring locations, **Site Class "D"** is recommended. The USGS-NEHRP probabilistic ground motion values near latitude N 39.720880° and longitude 82.959539° W are as follows:

Period (seconds)	2% Probability of event in 50 years (g%)	Site Coefficients	Max. Spectral Acceleration parameters	Design Spectral Acceleration parameters	
0.2 (S _s)	14.8	F _a = 1.6	S _{ms} = 0.237	S _{Ds} = 0.158	T ₀ = 0.123
1.0 (S ₁)	6.0	F _v = 2.4	S _{m1} = 0.145	S _{D1} = 0.097	T _s = 0.614

The Site Coefficients, F_a and F_v were interpolated from IBC 2006 Tables 1613.5.3 (1) and 1613.5.3 (2) as a function of the site classifications and the mapped spectral response acceleration at the short (S_s) and 1 second (S₁) periods.

According to Section 1613.5.6 of IBC 2006, sites supporting structures in design category "C" and below must be evaluated for slope instabilities, liquefaction and surface rupture due to faulting or lateral spreading. A detailed study of these effects was beyond PSI's scope of services. However,

the following table presents a qualitative assessment of these issues considering the site class, the subsurface soil properties, the groundwater elevation, and probabilistic ground motions:

Hazard	Relative Risk	Comments
Liquefaction	Low	The soil within the upper 50 feet of the subsurface profile is a relatively dense and/or cohesive soil
Slope Stability	Low	The site is relatively flat and does not/will not incorporate significant cut or fill slopes
Surface Rupture	Low	The site is not underlain by a mapped Holocene-aged fault

4.4 Floor Slab Recommendations

The floor slab can be grade supported on naturally occurring soils with minor remediation or stabilization practices. Proof-rolling, as discussed earlier in this report, should be accomplished to identify soft or unstable soils that should be removed from the floor slab area prior to fill placement and/or floor slab construction and replaced with properly compacted structural fill.

PSI recommends that a minimum four inch thick compactable and trimmable granular material mat be placed beneath the floor slab to enhance drainage. The soil surface shall be graded to drain away from the building without low spots that can trap water prior to placing the granular drainage layer. Polyethylene sheeting should be placed to act as a vapor retarder where the floor will be in contact with moisture sensitive equipment or products such as tile, wood, carpet, etc., as directed by the design engineer. The decision to locate the vapor retarder in direct contact with the slab or beneath the layer of granular fill should be made by the design engineer after considering the moisture sensitivity of subsequent floor finishes, anticipated project conditions, and the potential effects of slab curling and cracking. The floor slabs should have an adequate number of joints to reduce cracking resulting from differential movement and shrinkage.

For subgrade prepared as recommended and properly compacted fill, a modulus of subgrade reaction, k value, of 140 pounds per cubic inch (pci) may be used in the grade slab design. However, depending on how the slab load is applied, the value will have to be geometrically modified. The value should be adjusted for larger areas using the following expression for cohesive and cohesionless soil:

Modulus of Subgrade Reaction, $k_s = \left(\frac{k}{B}\right)$ for cohesive soil and

$$k_s = k \left(\frac{B+1}{2B}\right)^2 \text{ for cohesionless soil}$$

where: k_s = coefficient of vertical subgrade reaction for loaded area,
 k = coefficient of vertical subgrade reaction for 1 square foot area, and
 B = effective width of area loaded, in feet

The precautions listed below should be followed for construction of slab-on-grade pads. These details will not reduce the amount of movement, but are intended to reduce potential damage should some settlement of the supporting subgrade take place. Some increase in moisture content

is inevitable as a result of development and associated landscaping. However, extreme moisture content increases can be largely controlled by proper and responsible site drainage, building maintenance and irrigation practices.

- Cracking of slab-on-grade concrete is normal and should be expected. Cracking can occur not only as a result of heaving or compression of the supporting soil and/or bedrock material, but also as a result of concrete curing stresses. The occurrence of concrete shrinkage crack, and problems associated with concrete curing may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement, finishing, and curing, and by the placement of crack control joints at frequent intervals, particularly where re-entrant slab corners occur. The American Concrete Institute (ACI) recommends a maximum panel size (in feet) equal to approximately three times the thickness of the slab (in inches) in both directions. For example, joints are recommended at a maximum spacing of twelve (12) feet based on having a 4-inch slab. PSI also recommends that the slab be independent of the foundation walls. Using fiber reinforcement in the concrete can also control shrinkage cracking.
- Areas supporting slabs should be properly moisture conditioned and compacted. Backfill in all interior and exterior water and sewer line trenches should be carefully compacted to reduce the shear stress in the concrete extending over these areas.

Exterior slabs should be isolated from the building. These slabs should be reinforced to function as independent units. Movement of these slabs should not be transmitted to the building foundation or superstructure.

4.5 Utilities Trenching

Excavation for utility trenches shall be performed in accordance with Occupational Safety & Health Administration (OSHA) regulations as stated in 29 CFR Part 1926. It should be noted that utility trench excavations have the potential to degrade the properties of the adjacent fill materials. Utility trench walls that are allowed to move laterally can lead to reduced bearing capacity and increased settlement of adjacent structural elements and overlying slabs.

Backfill for utility trenches is as important as the original subgrade preparation or structural fill placed to support either a foundation or slab. Therefore, it is imperative that the backfill for utility trenches be placed to meet the project specifications for the structural fill of this project. PSI recommends that Low Strength Mortar (LSM) be utilized for utility trench backfill. If on-site soils are placed as trench backfill, the backfill for the utility trenches should be placed in four to six inch loose lifts and compacted to a minimum of 98% of the maximum dry density achieved by the standard Proctor test. The backfill soil should be moisture conditioned to be within 2% of the optimum moisture content as determined by the standard Proctor test. Up to four inches of bedding material placed directly under the pipes or conduits placed in the utility trench can be compacted to the 98% compaction criteria with respect to the standard Proctor. Compaction testing should be performed for every 200 cubic yards of backfill place or each lift within 200 linear feet of trench, whichever is less. Backfill of utility trenches should not be performed with water standing in the trench. If granular material is used for the backfill of the utility trench, the granular material should have a gradation that will filter protect the backfill material from the adjacent soils. If this gradation is not available, a geosynthetic non-woven filter fabric should be used to reduce the potential for the migration of fines into the backfill material. Granular backfill material shall be compacted to meet the above compaction criteria. The clean granular backfill material should be compacted to achieve

a relative density greater than 75% or as specified by the geotechnical engineer for the specific material used.

4.6 Below-Grade Structures

Below-grade structures should be designed to resist lateral earth pressures. Lateral earth pressure is developed from the soils present within a wedge formed by the vertical below-grade wall and an imaginary line extending up and away from the bottom of the wall at an approximate 45° angle. The lateral earth pressures are determined by multiplying the vertical applied pressure by the appropriate lateral earth pressure coefficient K. If the walls are rigidly attached to the structure and not free to rotate or deflect at the top, PSI recommends designing the walls for the “at-rest” lateral earth pressure condition using K_o . Walls that are permitted to rotate and deflect at the top can be designed for the active lateral earth pressure condition using K_a . Passive pressure can be determined using K_p , with a factor of safety of 2.0. Recommended parameters for use in below grade walls are as follows:

Preliminary Below-Grade Wall Design Parameters

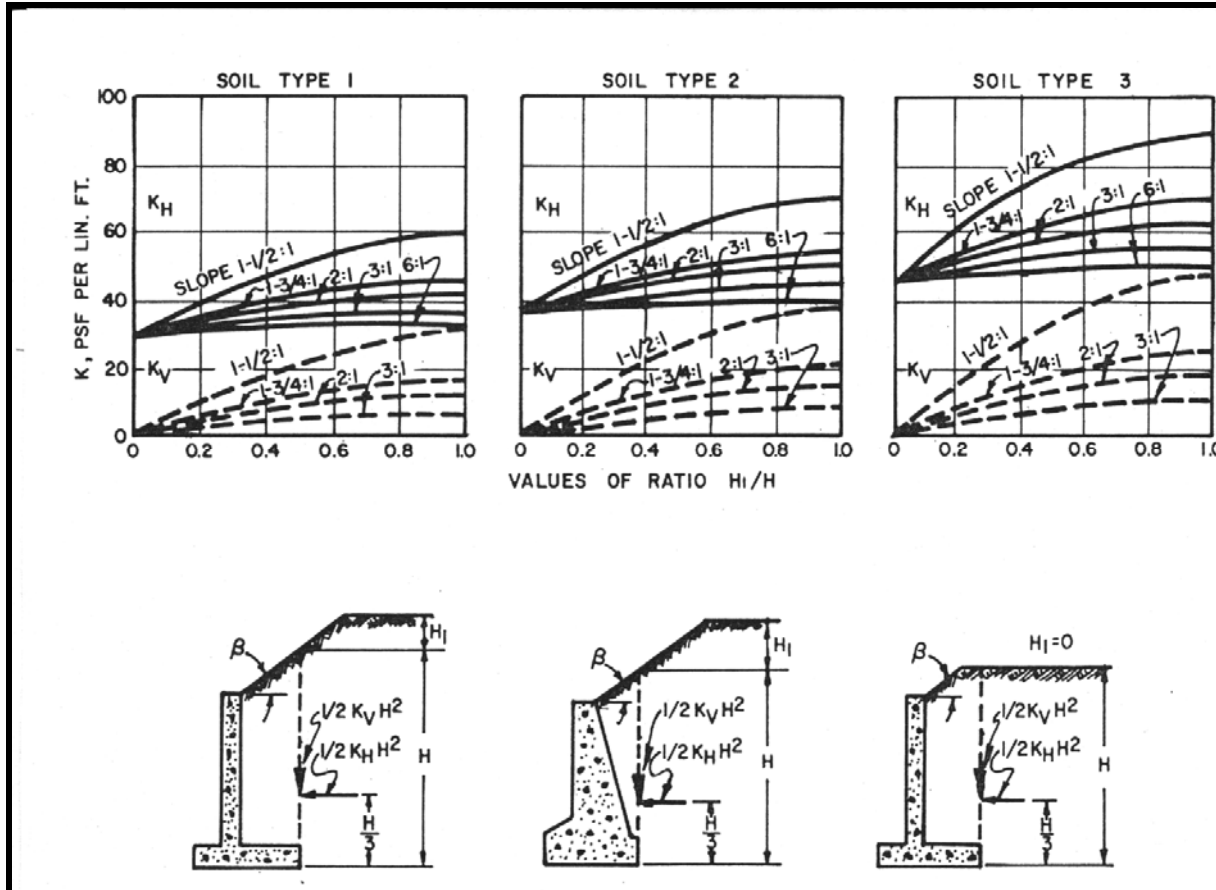
Material Type	Saturated Unit Weight (pcf)	Shear Strength (psf)	Angle of Internal Friction (Degrees)	Active Earth Pressure Coefficient (K_a)	Passive Earth Pressure Coefficient (K_p)	At-Rest Earth Pressure Coefficient (K_o)
Select Granular Fill	120	-	34	0.28	3.54	0.44
Sandy Lean Clay (CL)	115	400	24	0.42	2.37	0.59
Silty Sand (SM)	110	-	36	0.26	3.85	0.41

* Earth pressure coefficients are based upon the angle of internal friction only. The coefficients assume that the grades are level and does not account for wall friction. Sloping ground surfaces and surcharge loads need to be considered in the design

The values presented above were calculated based on positive foundation drainage is provided to prevent the buildup of hydrostatic pressure. If surface loads are placed near the walls, such as traffic loads, they should be designed to resist an additional uniform lateral load of one-half of the vertical surface loads. An “equivalent fluid” pressure can be obtained from the above chart by multiplying the appropriate K-factor times the total unit weight of the soil. This applies to unsaturated conditions only. If a saturated “equivalent fluid” pressure is needed, the effective unit weight (total unit weight minus unit weight of water) should be multiplied times the appropriate K-factor and the unit weight of water added to that resultant. However, PSI does not recommend that earth retaining walls be designed with a hydrostatic load and that drainage should be provided to relieve the pressure.

In specific design cases where water is allowed to build up on the below-grade wall structure, the hydrostatic load correlating to the maximum height of the water build up should be added to the lateral loads acting on the wall.

The designs of below grade walls need to take into account the effects of geometry and loading conditions. The following charts have been included from NAVFAC 7.02 concerning slopes in the grade at the top of below grade wall. Depending on the geometry of the site, the lateral loading on the below grade wall should be modified according to these charts.



Soil Type 1 – Clean Sand and Gravel, GW, GP, SW, SP

Soil Type 2 – Dirty Sand and Gravel of Restricted Permeability, GM, GM-GP, SM-SP, SM

Soil Type 3 – Stiff Residual Silts and Clays, Silty Fine Sands, Clayey Sands and Gravels: CL, ML, CH, MH, SM, SC, GC

4.7 Below-Grade Structure Wall Back-Drain

PSI recommends that the retaining wall be adequately water-proofed and be provided with a wall back-drain system. One possible drainage system is shown in the sketch below and would include:

- 1) A four or six inch diameter perforated drain tile at the bottom of the backfill to collect seepage water with the tile connected to a suitable means of disposal.
- 2) Clean ½ inch or one inch gravel classified as "GP" and containing less than 5% passing a #200 sieve surrounding the draitile.
- 3) Non-woven four ounce per square yard geotextile between the drainage material and the on-site soils to prevent infiltration of fine grained soils into the draitile, granular drainage blanket, or granular backfill.

As an alternative, a geocomposite drain material can be placed between the retaining wall and the

backfill soils. Underdrains, sub-drains and underslab drains presented in this report will not prevent moisture vapor that can cause mold growth.

The placement of a limited amount of granular material behind a below-grade wall does not appreciably change the coefficient of lateral earth pressure acting on that wall. The lateral earth pressure acting on a below-grade structure is a function of the weight of the soil that exists above the theoretical plane projecting up from the base of the wall. The soil above this plane is held in place by two forces, the strength of the soil itself and the lateral resistance of the below-grade wall. Therefore, a thin layer of granular material behind the wall is of little consequence on the forces acting on the wall.

4.8 Below-Grade Structure Wall Backfill and Compaction

Backfill of the proposed below-grade walls may consist of low plastic soils or granular material. PSI suggests using granular material to provide improved drainage and to reduce lateral pressures on the walls resulting from water pressure. The backfill materials should be placed in lifts that do not exceed 8-inches loose. The lift thickness may need to be reduced to thinner lifts immediately behind the walls to achieve the desired amount of compaction without overstressing the wall with the compaction process.

Backfill should be placed in thin lifts and mechanically compacted to at least 98% of the materials' maximum dry density and within 2% of the optimum water content as determined by the standard Proctor test. PSI advises performing field density tests on the backfill to monitor compliance with the recommendations provided. Care should be exercised during the backfilling operation to prevent overstressing and damaging the walls.

Where the distance between the proposed structure walls and the temporary retaining wall system do not allow for traditional backfilling methods, the annular space may be filled with clean gravel (#57) or controlled density fill (CDF).

4.9 Temporary Slopes and Retaining Walls

In accordance with OSHA Regulation 29 CFR Part 1926, temporary slopes at this site should not exceed steeper than a ratio of three-quarter horizontal to one vertical for stiff lean clays (type A soils) and one and one-half horizontal to one vertical for type A over type C soils where workers or equipment will occupy space at the toe or where the movement of the excavated slope will jeopardize the stability of an adjacent structure. The contractor's competent person shall determine actual soil and groundwater conditions and determine the safe slope conditions.

The naturally occurring existing soils should be prepared and fill placed in accordance with the previously described structural fill guidelines. A representative of the geotechnical engineer should monitor the benching and fill placement operations. The following table briefly shows excavation options for soils encountered at this site.

Where the proposed excavation is in excess of 20 vertical feet, a temporary retaining structure will be required. The retaining structure should extend an adequate distance below the proposed excavation to prevent soil heaving and piping. Minimum required embedment depths should be determined by the design engineer.

Where the water table is not lowered below the excavation, PSI recommends that below grade structures be adequately water-proofed to prevent seepage and dewatering systems be installed. A minimum thickness of 12 inches granular layer should be placed behind the wall in order to drain water to sump areas in case water seepage cannot be completely avoided.

If water is allowed to build up on the below-grade wall, the hydrostatic load correlating to the maximum height of the water build up should be added to the lateral loads acting on the wall. If the water table is lowered below excavation bottoms, proper drainage behind the wall should be assured.

5.0 CONSTRUCTION CONSIDERATIONS

PSI should be retained to provide observation and testing of construction activities involved in the foundation, earthwork, and related activities of this project. PSI cannot accept responsibility for conditions that deviate from those described in this report, nor for the performance of the foundation system if not engaged to also provide construction observation and testing for this project.

5.1 Moisture Sensitive Soils/Weather Related Concerns

The upper fine-grained soils encountered at this site are expected may be sensitive to disturbances caused by construction traffic and to changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in the soil strength and support capabilities. In addition, soils that become wet may be slow to dry and thus significantly retard the progress of grading and compaction activities. It will, therefore, be advantageous to perform earthwork and foundation construction activities during dry weather.

5.2 Drainage and Groundwater Considerations

PSI recommends that the Contractor determine the actual groundwater levels at the site at the time of the construction activities to assess the impact groundwater may have on construction. Where dewatering is planned, the groundwater should be lowered a minimum of 2 feet below the bottom of the excavation. Undercut or excavated areas should be sloped toward one corner to facilitate removal of collected rainwater, groundwater, or surface runoff.

It is anticipated that dewatering will be required where excavations penetrate into the silty sand materials encountered below 20 feet at WRRF site. The silty sands encountered at the site had a very dense consistency which may impact the efficiency of the traditional dewatering systems such as sump pumps. Consideration should be given to the use of a well point system; however the contractor should determine the appropriate system based on experience with similar soil conditions.

In addition, seepage should be anticipated where excavation extend below 10 feet, but do not penetrate the silty sands encountered below 20 feet. Due to the low permeability of the soils encountered, this seepage can likely be controlled with proper drainage and a properly installed sump system.

It is possible that seasonal variations will cause fluctuations or a water table to be present in the upper soils, such as encountered in the silt layers in the upper 10 feet of the site. Should excessive

and uncontrolled amounts of seepage occur, the Geotechnical engineer should be consulted.

5.3 Excavations

In Federal Register, Volume 54, Number 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, part 1926, Subpart P". This document was issued to better enhance the safety of workers entering trenches or excavations. It is mandated by this federal regulation that excavations, whether they be utility trenches, basement excavation or footing excavations, be constructed in accordance with the new OSHA guidelines. It is PSI's understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person", as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

PSI is providing this information solely as a service to our client. PSI does not assume responsibility for construction site safety or the contractor's or other parties' compliance with local, state, and federal safety or other regulations.

6.0 GEOTECHNICAL RISK

The concept of risk is an important aspect of the geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. The analytical tools which geotechnical engineers use are generally empirical and must be used in conjunction with engineering judgment and experience. Therefore, the solutions and recommendations presented in the geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and the proposed structure will perform as planned. The engineering recommendations presented in the preceding section constitutes PSI's professional estimate of those measures that are necessary for the proposed structure to perform according to the proposed design based on the information generated and referenced during this evaluation, and PSI's experience in working with these conditions.

7.0 REPORT LIMITATIONS

The recommendations submitted are based on the available subsurface information obtained by PSI and preliminary design information furnished by URS Corporation. If there are revisions to the plans for this project or if deviations from the subsurface conditions noted in this report are encountered during construction, PSI should be notified immediately to determine if changes in the foundation recommendations are required. If PSI is not retained to perform these functions, PSI will not be responsible for the impact of those conditions on the project.

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

After the plans and specifications are more complete, the geotechnical engineer should be retained and provided the opportunity to review the final design plans and specifications to check that our engineering recommendations have been properly incorporated into the design documents. At that time, it may be necessary to submit supplementary recommendations. This report has been prepared for the exclusive use of URS Corporation for the specific application to the proposed Water Resource Recovery Facility located in Ashville, Pickaway County, Ohio.

Appendix



Site Location Map



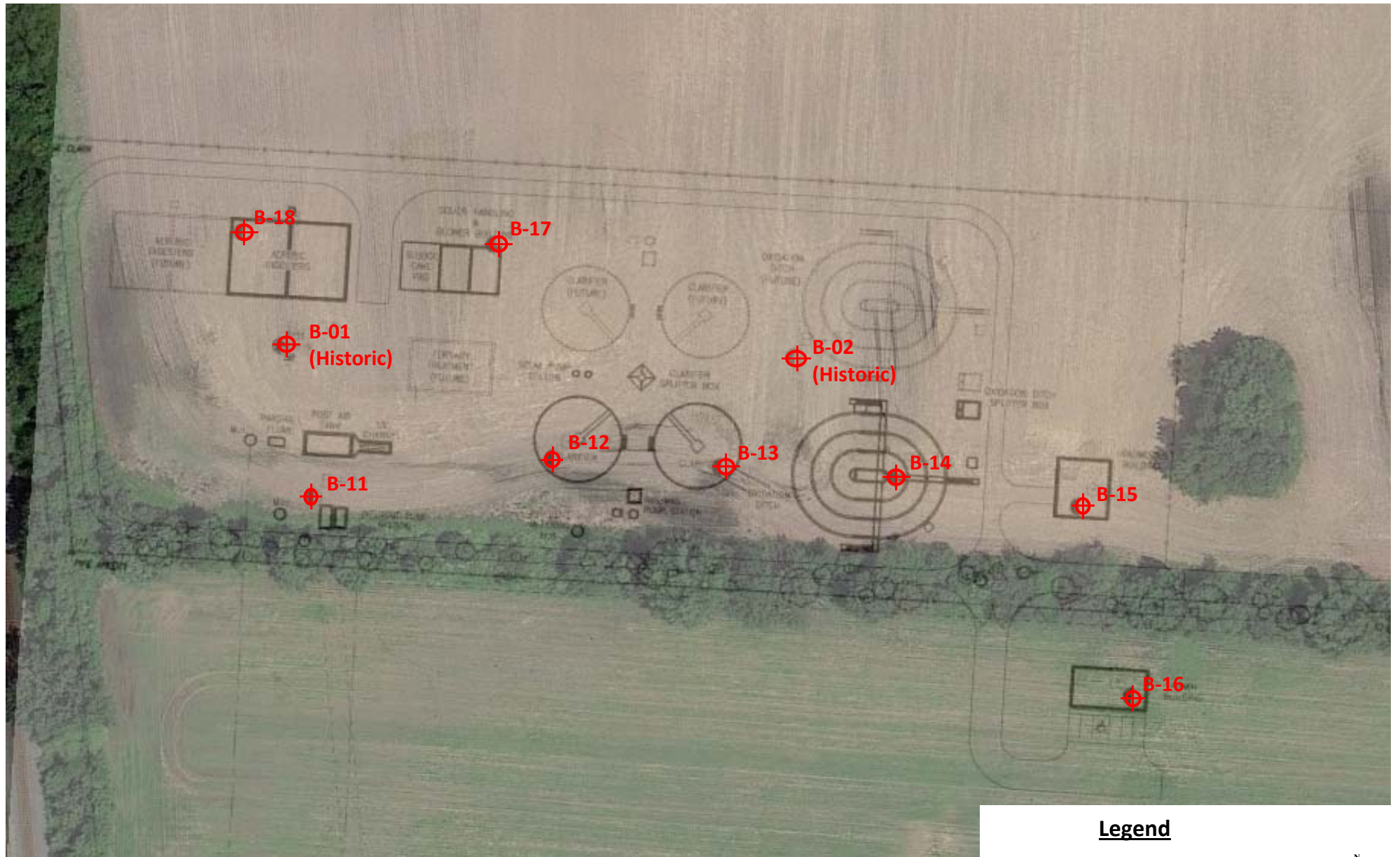
Note: Base Map Provided by Client and Google Earth,™ Altered for PSI use.

psi Information
To Build On
Engineering • Consulting • Testing

Water Resource Recovery Facility


Village of Ashville, Perry County, Ohio


PSI Project No.: 0102671



Boring Location Plan (1 of 2)

Legend

 **B-18** Boring Location and Number



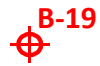
Note: Base Map Provided by Client and Google Earth™, Altered for PSI use.



Water Resource Recovery Facility
 Village of Ashville, Perry County, Ohio
 PSI Project No.: 0102671



Boring Location Plan (2 of 2)



Legend

Boring Location and Number



Note: Base Map Provided by Client and Google Earth™, Altered for PSI use.



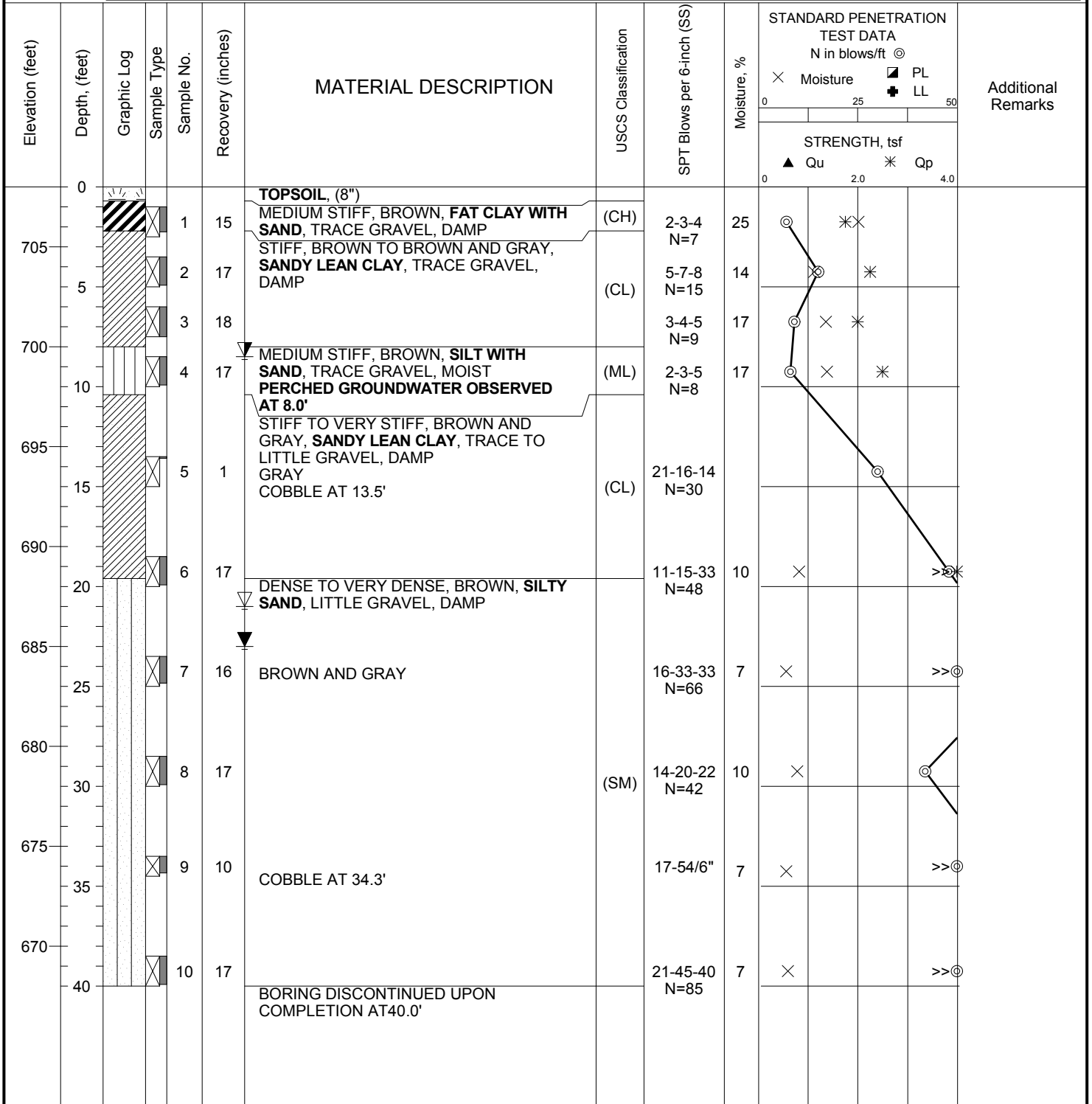
Water Resource Recovery Facility
 Village of Ashville, Perry County, Ohio
 PSI Project No.: 0102671

DATE STARTED: 5/16/14 **DRILL COMPANY:** PSI, Inc.
DATE COMPLETED: 5/16/14 **DRILLER:** J.E. **LOGGED BY:** J.E.
COMPLETION DEPTH: 40.0 ft **DRILL RIG:** CME 45 C ATV 2007
BENCHMARK: N/A **DRILLING METHOD:** Hollow Stem Auger
ELEVATION: 708 ft **SAMPLING METHOD:** 2-in SS
LATITUDE: 39.720754° **HAMMER TYPE:** Automatic
LONGITUDE: -82.960205° **EFFICIENCY:** 88%
STATION: N/A **OFFSET:** N/A **REVIEWED BY:** M.A.

BORING B-11			
Water	▽	While Drilling	21.0 feet
	▼	Upon Completion	23.0 feet
	▽	Caved	8.5 feet

BORING LOCATION:

REMARKS: Soil symbol in '()' = Visual Classification



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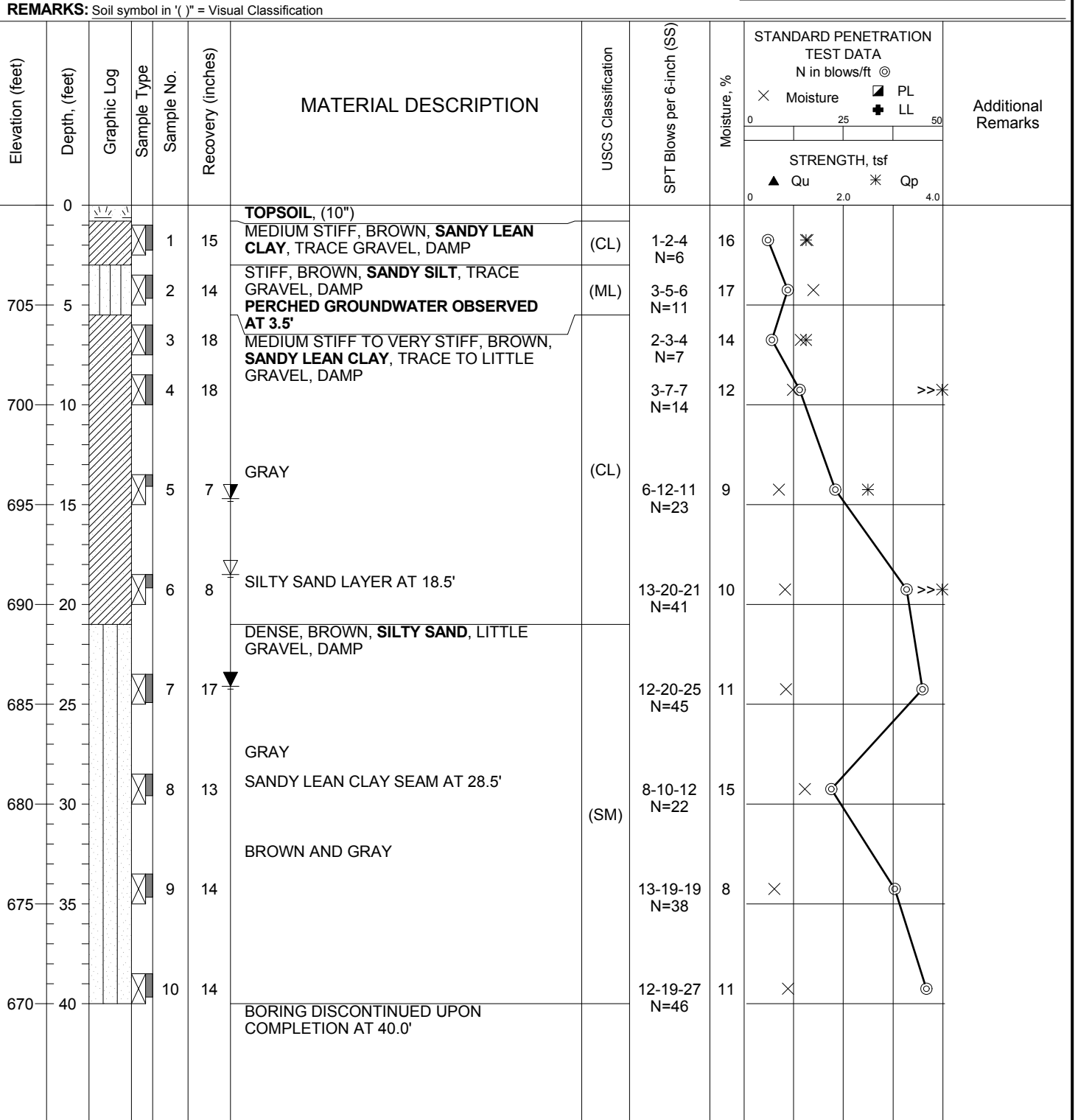
PROJECT NO.: 0102671
PROJECT: Water Resource Recovery Facility (WRRF)
LOCATION: Village of Ashville, Ohio

DATE STARTED: 5/15/14 **DRILL COMPANY:** PSI, Inc.
DATE COMPLETED: 5/15/14 **DRILLER:** J.E. **LOGGED BY:** J.E.
COMPLETION DEPTH: 40.0 ft **DRILL RIG:** CME 45 C ATV 2007
BENCHMARK: N/A **DRILLING METHOD:** Hollow Stem Auger
ELEVATION: 710 ft **SAMPLING METHOD:** 2-in SS
LATITUDE: 39.72091° **HAMMER TYPE:** Automatic
LONGITUDE: -82.959625° **EFFICIENCY:** 88%
STATION: N/A **OFFSET:** N/A **REVIEWED BY:** M.A.

BORING B-12

Water	▽ While Drilling	18.5 feet
	▼ Upon Completion	24.1 feet
	▽ Caved	14.7 feet

BORING LOCATION:



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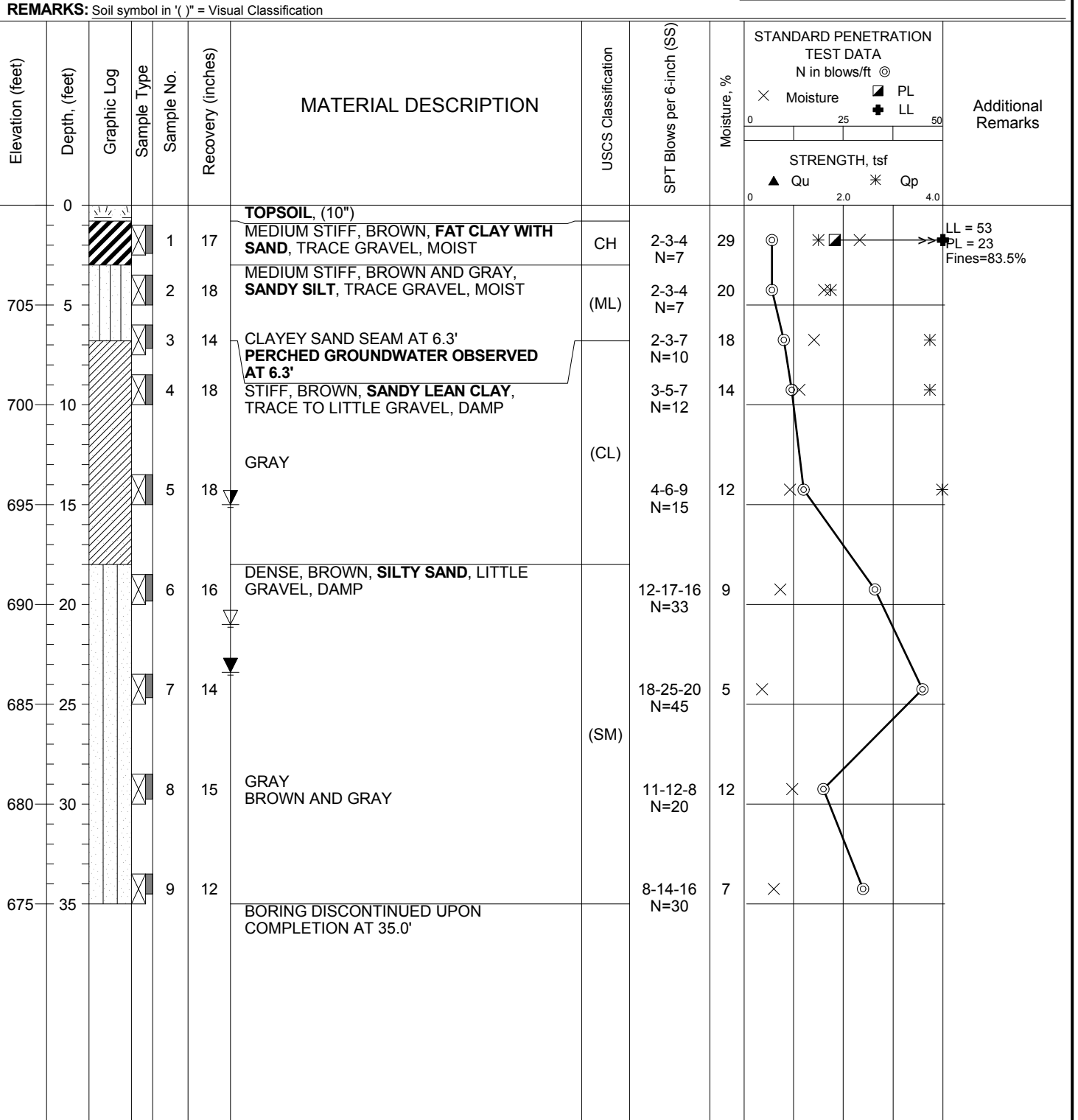
PROJECT NO.: 0102671
PROJECT: Water Resource Recovery Facility (WRRF)
LOCATION: Village of Ashville, Ohio

DATE STARTED: 5/16/14 **DRILL COMPANY:** PSI, Inc.
DATE COMPLETED: 5/16/14 **DRILLER:** J.E. **LOGGED BY:** J.E.
COMPLETION DEPTH: 35.0 ft **DRILL RIG:** CME 45 C ATV 2007
BENCHMARK: N/A **DRILLING METHOD:** Hollow Stem Auger
ELEVATION: 710 ft **SAMPLING METHOD:** 2-in SS
LATITUDE: 39.720818° **HAMMER TYPE:** Automatic
LONGITUDE: -82.959099° **EFFICIENCY:** 88%
STATION: N/A **OFFSET:** N/A **REVIEWED BY:** M.A.

BORING B-13

Water	▽ While Drilling	21.0 feet
	▼ Upon Completion	23.4 feet
	▽ Caved	15.0 feet

BORING LOCATION:



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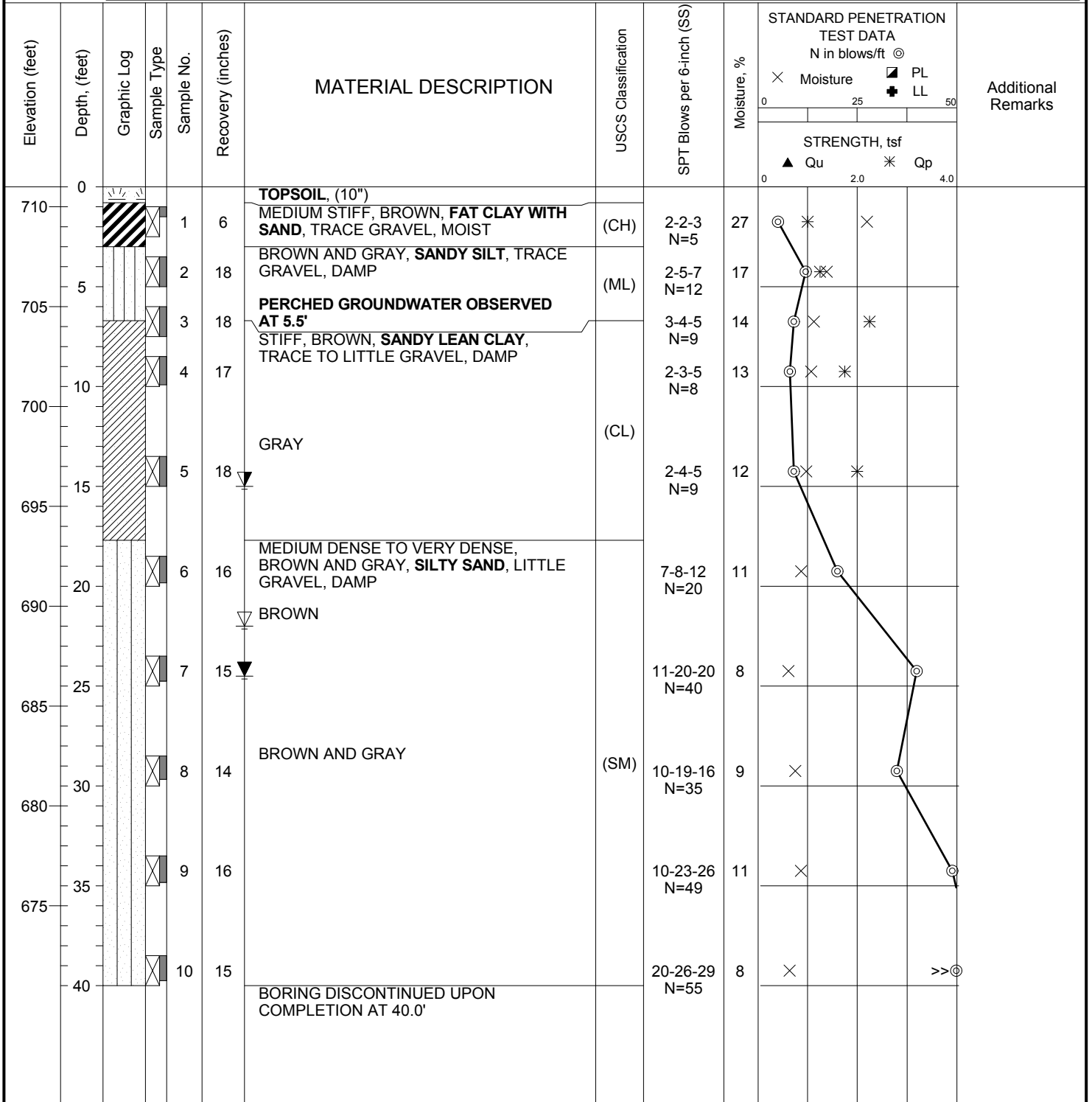
PROJECT NO.: 0102671
PROJECT: Water Resource Recovery Facility (WRRF)
LOCATION: Village of Ashville, Ohio

DATE STARTED: 5/15/14 **DRILL COMPANY:** PSI, Inc.
DATE COMPLETED: 5/15/14 **DRILLER:** J.E. **LOGGED BY:** J.E.
COMPLETION DEPTH: 40.0 ft **DRILL RIG:** CME 45 C ATV 2007
BENCHMARK: N/A **DRILLING METHOD:** Hollow Stem Auger
ELEVATION: 711 ft **SAMPLING METHOD:** 2-in SS
LATITUDE: 39.720794° **HAMMER TYPE:** Automatic
LONGITUDE: -82.958622° **EFFICIENCY:** 88%
STATION: N/A **OFFSET:** N/A **REVIEWED BY:** M.A.
REMARKS: Soil symbol in '()' = Visual Classification

BORING B-14

Water	▽ While Drilling	22.0 feet
	▼ Upon Completion	24.5 feet
	▽ Caved	15.0 feet

BORING LOCATION:



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PROJECT NO.: 0102671
PROJECT: Water Resource Recovery Facility (WRRF)
LOCATION: Village of Ashville, Ohio

DATE STARTED: 5/15/14 **DRILL COMPANY:** PSI, Inc.
DATE COMPLETED: 5/15/14 **DRILLER:** J.E. **LOGGED BY:** J.E.
COMPLETION DEPTH: 25.0 ft **DRILL RIG:** CME 45 C ATV 2007
BENCHMARK: N/A **DRILLING METHOD:** Hollow Stem Auger
ELEVATION: 714 ft **SAMPLING METHOD:** 2-in SS
LATITUDE: 39.720734° **HAMMER TYPE:** Automatic
LONGITUDE: -82.958127° **EFFICIENCY:** 88%
STATION: N/A **OFFSET:** N/A **REVIEWED BY:** M.A.

BORING B-15

Water	▽ While Drilling	feet
	▼ Upon Completion	feet
	▽ Caved	20.2 feet

BORING LOCATION:

REMARKS: Soil symbol in '()' = Visual Classification

Elevation (feet)	Depth (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	STANDARD PENETRATION TEST DATA		Additional Remarks
									N in blows/ft (⊙)		
									Moisture, %		
									× Moisture ◻ PL ⊕ LL		
									STRENGTH, tsf		
									▲ Qu * Qp		
714	0					TOPSOIL, (8")					
				1	16	MEDIUM STIFF, BROWN, LEAN CLAY WITH SAND, TRACE GRAVEL, DAMP	(CL)	2-2-5 N=7	19	⊙*	
				2	28	MEDIUM STIFF TO STIFF, BROWN TO BROWN AND GRAY, SANDY LEAN CLAY, TRACE GRAVEL, DAMP	(CL)	3-4-6 N=10	20	⊙*	
	5			3	17	MEDIUM STIFF, BROWN, SANDY SILT, TRACE GRAVEL, MOIST	(ML)	2-4-4 N=8	16	⊙*	
705	10			4	18	VERY STIFF TO STIFF, BROWN, SANDY LEAN CLAY, TRACE TO LITTLE GRAVEL, TRACE COBBLES, DAMP SILTY SAND LAYER AT 9.8'		2-8-14 N=22	16	⊙*	>>*
700	15			5	18	GRAY	(CL)	3-5-7 N=12	10	⊙*	
695	20			6	16	MEDIUM DENSE TO VERY DENSE, GRAY, SILTY SAND, LITTLE GRAVEL, DAMP COBBLES AT 18.3' BROWN TRACE COBBLES	(SM)	14-15-14 N=29	16	⊙*	
690	25			7	17	BORING DISCONTINUED UPON COMPLETION AT 25.0'		26-36-34 N=70	3	⊙*	>>⊙



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PROJECT NO.: 0102671
PROJECT: Water Resource Recovery Facility (WRRF)
LOCATION: Village of Ashville, Ohio

DATE STARTED: 5/14/14 **DRILL COMPANY:** PSI, Inc.
DATE COMPLETED: 5/14/14 **DRILLER:** J.E. **LOGGED BY:** J.E.
COMPLETION DEPTH: 25.0 ft **DRILL RIG:** CME 45 C ATV 2007
BENCHMARK: N/A **DRILLING METHOD:** Hollow Stem Auger
ELEVATION: 714 ft **SAMPLING METHOD:** 2-in SS
LATITUDE: 39.720334° **HAMMER TYPE:** Automatic
LONGITUDE: -82.957983° **EFFICIENCY:** 88%
STATION: N/A **OFFSET:** N/A **REVIEWED BY:** M.A.

BORING B-16

Water
 ∇ While Drilling feet
 ▼ Upon Completion feet
 ▽ Caved 17.8 feet

BORING LOCATION:

Elevation (feet)	Depth (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STRENGTH, tsf	Additional Remarks
714	0					TOPSOIL, (7")					
710	4			1	13	MEDIUM STIFF TO STIFF, BROWN, LEAN CLAY WITH SAND, TRACE GRAVEL, DAMP	(CL)	2-3-4 N=7	23		
705	10			2	18		(CL)	4-7-8 N=15	14		>>*
705	10			3	18	GROUNDWATER SEEPAGE OBSERVED AT 7.2'		4-5-6 N=11	15		*
700	15			4	18	VERY STIFF, BROWN, SANDY LEAN CLAY, TRACE TO LITTLE GRAVEL, DAMP	(CL)	4-5-19 N=24	14		>>*
700	15			5	18	GRAY	(CL)	5-7-8 N=15	10		>>*
695	20			6	18	VERY DENSE, BROWN, SILTY SAND, LITTLE TO SOME GRAVEL, DAMP	(SM)	0-23-40 N=63	16		>>⊙
690	25			7		BORING DISCONTINUED UPON COMPLETION AT 25.0'		21-36-42 N=78	6		>>⊙



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PROJECT NO.: 0102671
PROJECT: Water Resource Recovery Facility (WRRF)
LOCATION: Village of Ashville, Ohio

DATE STARTED: 5/16/14 **DRILL COMPANY:** PSI, Inc.
DATE COMPLETED: 5/16/14 **DRILLER:** J.E. **LOGGED BY:** J.E.
COMPLETION DEPTH: 24.5 ft **DRILL RIG:** CME 45 C ATV 2007
BENCHMARK: N/A **DRILLING METHOD:** Hollow Stem Auger
ELEVATION: 710 ft **SAMPLING METHOD:** 2-in SS
LATITUDE: 39.721287° **HAMMER TYPE:** Automatic
LONGITUDE: -82.959707° **EFFICIENCY:** 88%
STATION: N/A **OFFSET:** N/A **REVIEWED BY:** M.A.

BORING B-17

Water	▽ While Drilling	21.5 feet
	▼ Upon Completion	21.7 feet
	▽ Caved	10.0 feet

BORING LOCATION:

Elevation (feet)	Depth (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STRENGTH, tsf	Additional Remarks
705	0					TOPSOIL, (10")	(CH)	2-2-6 N=8	25	Qu *	
705	5			1	14	MEDIUM STIFF, BROWN AND GRAY, FAT CLAY WITH SAND , TRACE GRAVEL, DAMP	(ML)	3-4-7 N=11	16	Qu * X	
705	10			2	17	STIFF, BROWN AND GRAY, SANDY SILT , TRACE GRAVEL, DAMP	(CL)	4-5-8 N=13	21	Qu * X	
700	15			3	17	STIFF, BROWN TO BROWN AND GRAY, SANDY LEAN CLAY , TRACE GRAVEL, DAMP	(SM)	4-7-9 N=16	11	Qu * X	>>*
695	20			4	17	MEDIUM DENSE, BROWN TO GRAY, SILTY SAND , TRACE GRAVEL, DAMP PERCHED GROUNDWATER OBSERVED AT 9.8'	(SM)	7-9-10 N=19	17	Qu * X	>>* LL = 19 PL = 14 Fines=71.8%
690	25			5	12	VERY STIFF, GRAY, SILTY CLAY WITH SAND , TRACE TO LITTLE GRAVEL, DAMP	CL-ML	8-10-21 N=31	11	Qu * X	>>*
	30			6	16	BROWN AND GRAY	(SM)	23-52/6"	6	Qu * X	>>*
	35			7	12	VERY DENSE, BROWN, SILTY SAND , LITTLE GRAVEL, DAMP					>>*
	40					BORING DISCONTINUED UPON COMPLETION AT 24.5'					>>*



Professional Service Industries, Inc.
 4960 Vulcan Ave, Suite C
 Columbus, OH 43228
 Telephone: (614) 876-8000

PROJECT NO.: 0102671
PROJECT: Water Resource Recovery Facility (WRRF)
LOCATION: Village of Ashville, Ohio

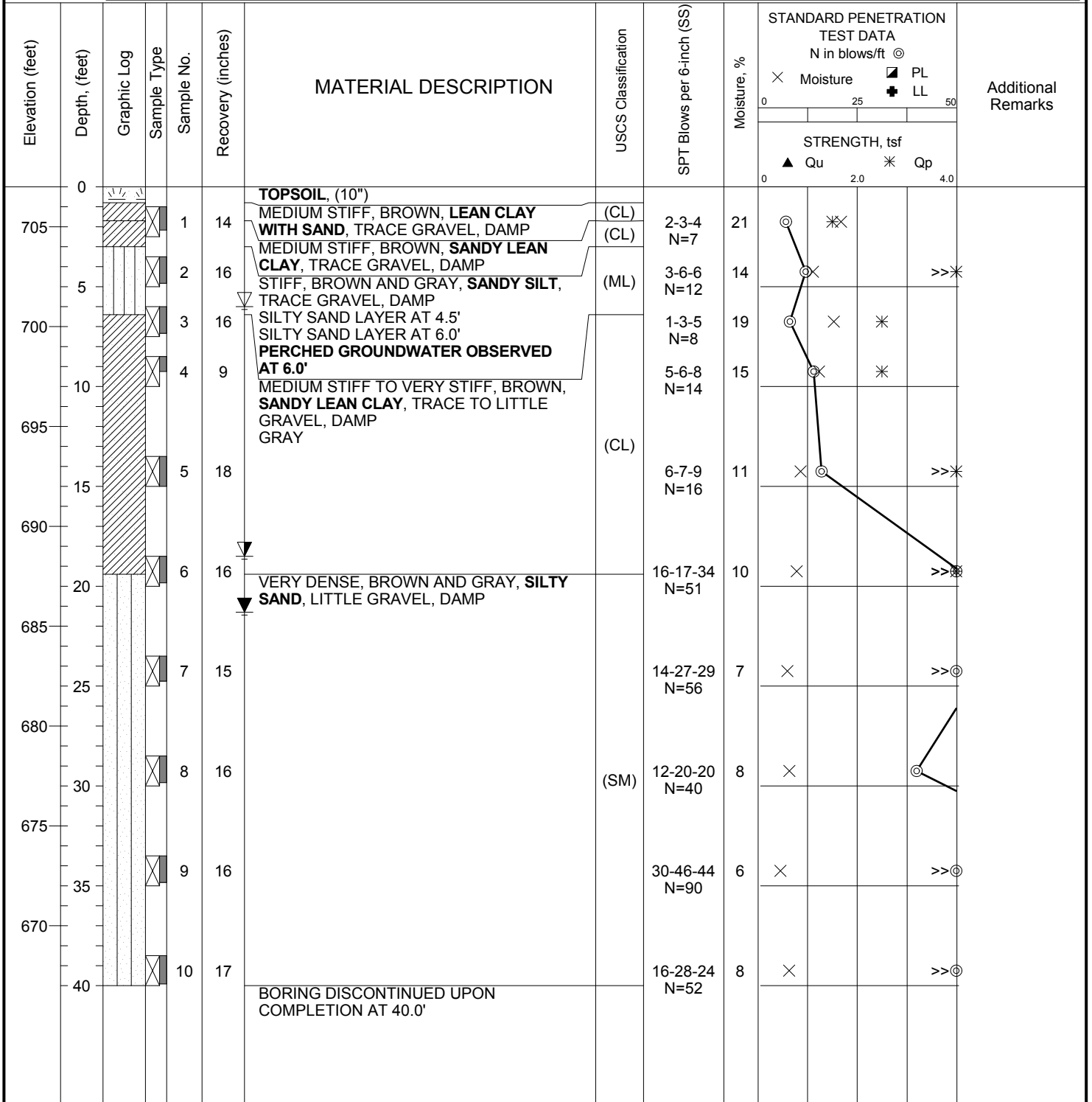
DATE STARTED: 5/16/14
DATE COMPLETED: 5/16/14
COMPLETION DEPTH: 40.0 ft
BENCHMARK: N/A
ELEVATION: 707 ft
LATITUDE: 39.721317°
LONGITUDE: -82.960395°
STATION: N/A **OFFSET:** N/A
REMARKS: Soil symbol in '()' = Visual Classification

DRILL COMPANY: PSI, Inc.
DRILLER: J.E. **LOGGED BY:** J.E.
DRILL RIG: CME 45 C ATV 2007
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: 2-in SS
HAMMER TYPE: Automatic
EFFICIENCY: 88%
REVIEWED BY: M.A.

BORING B-18

Water	▽ While Drilling	6.0 feet
	▼ Upon Completion	21.3 feet
	▽ Caved	18.5 feet

BORING LOCATION:



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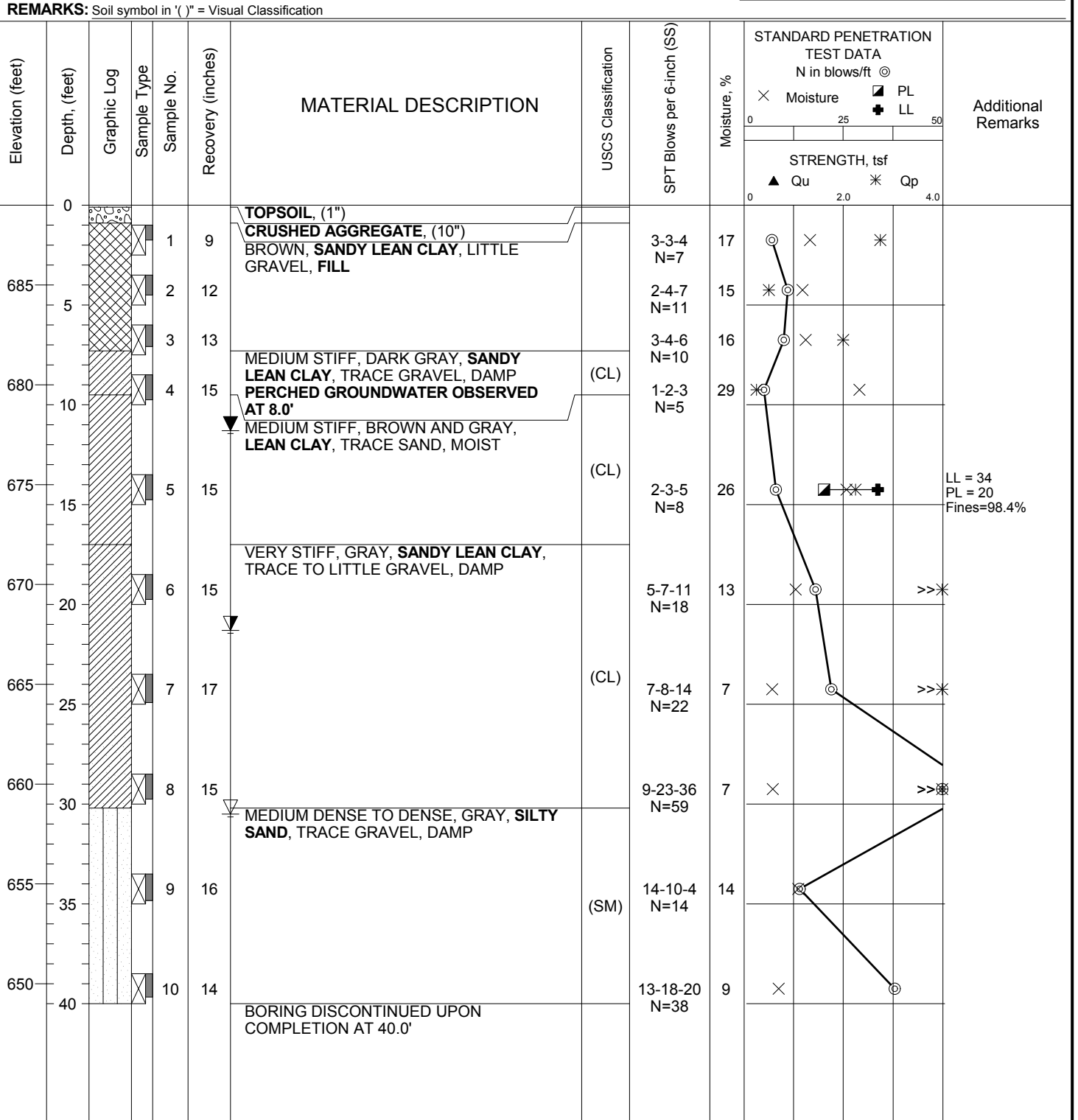
PROJECT NO.: 0102671
PROJECT: Water Resource Recovery Facility (WRRF)
LOCATION: Village of Ashville, Ohio

DATE STARTED: 5/14/14 **DRILL COMPANY:** PSI, Inc.
DATE COMPLETED: 5/14/14 **DRILLER:** J.E. **LOGGED BY:** J.E.
COMPLETION DEPTH: 40.0 ft **DRILL RIG:** CME 45 C ATV 2007
BENCHMARK: N/A **DRILLING METHOD:** Hollow Stem Auger
ELEVATION: 689 ft **SAMPLING METHOD:** 2-in SS
LATITUDE: 39.711059° **HAMMER TYPE:** Automatic
LONGITUDE: -82.958597° **EFFICIENCY:** 88%
STATION: N/A **OFFSET:** N/A **REVIEWED BY:** M.A.

BORING B-19

Water	▽ While Drilling	30.5 feet
	▼ Upon Completion	11.3 feet
	▽ Caved	21.3 feet

BORING LOCATION:



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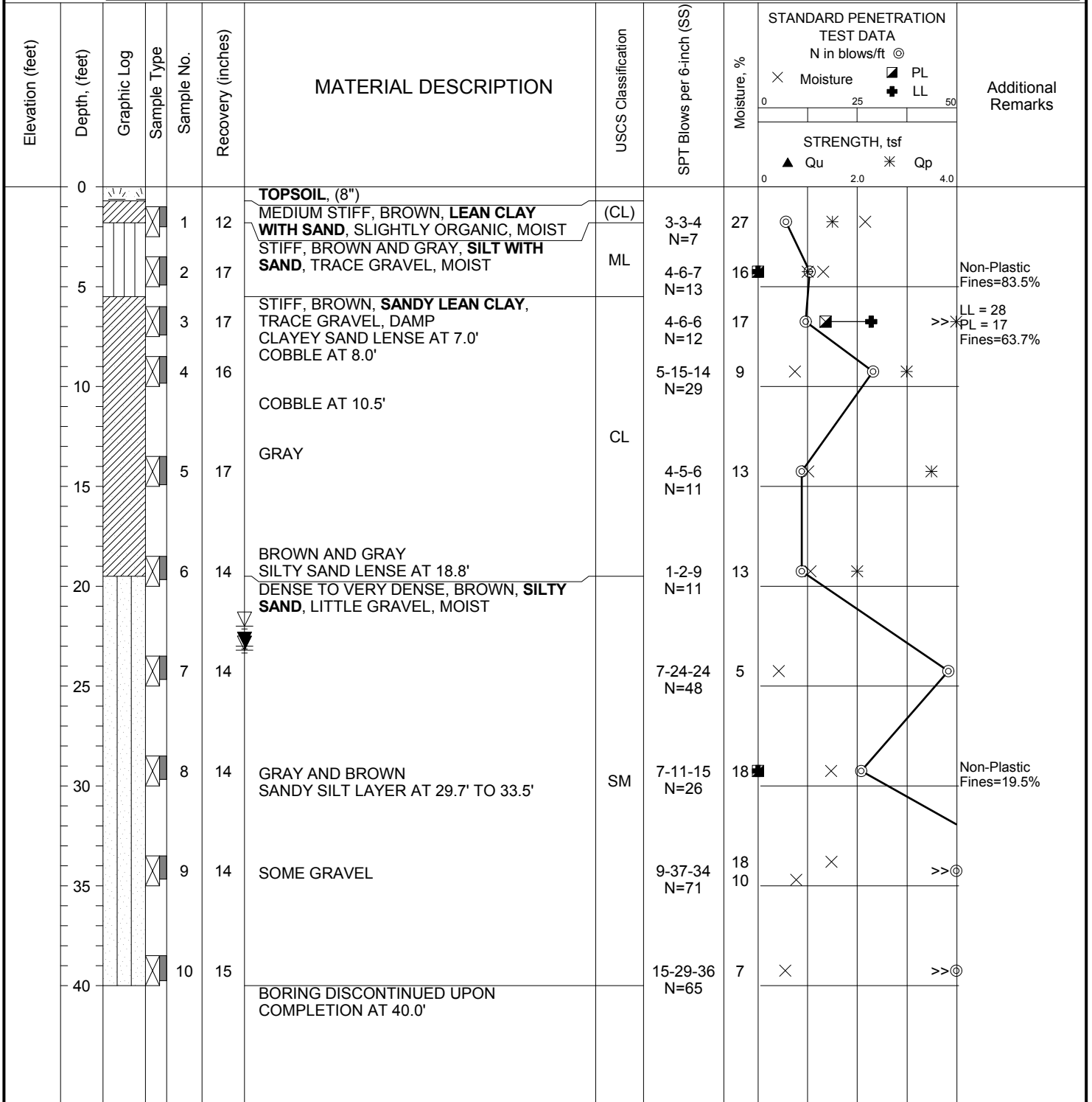
PROJECT NO.: 0102671
PROJECT: Water Resource Recovery Facility (WRRF)
LOCATION: Village of Ashville, Ohio

DATE STARTED: 11/14/13 **DRILL COMPANY:** PSI, Inc.
DATE COMPLETED: 11/14/13 **DRILLER:** J.E. **LOGGED BY:** J.E.
COMPLETION DEPTH: 40.0 ft **DRILL RIG:** CME 45 C ATV 2007
BENCHMARK: N/A **DRILLING METHOD:** Hollow Stem Auger
ELEVATION: N/A **SAMPLING METHOD:** 2-in SS
LATITUDE: 39.72103° **HAMMER TYPE:** Automatic
LONGITUDE: -82.95898° **EFFICIENCY:** 88%
STATION: N/A **OFFSET:** N/A **REVIEWED BY:**
REMARKS: Soil symbol in '()' = Visual Classification

BORING B-01

Water	▽ While Drilling	22.0 feet
	▼ Upon Completion	23.0 feet
	▽ Caved	23.2 feet

BORING LOCATION:



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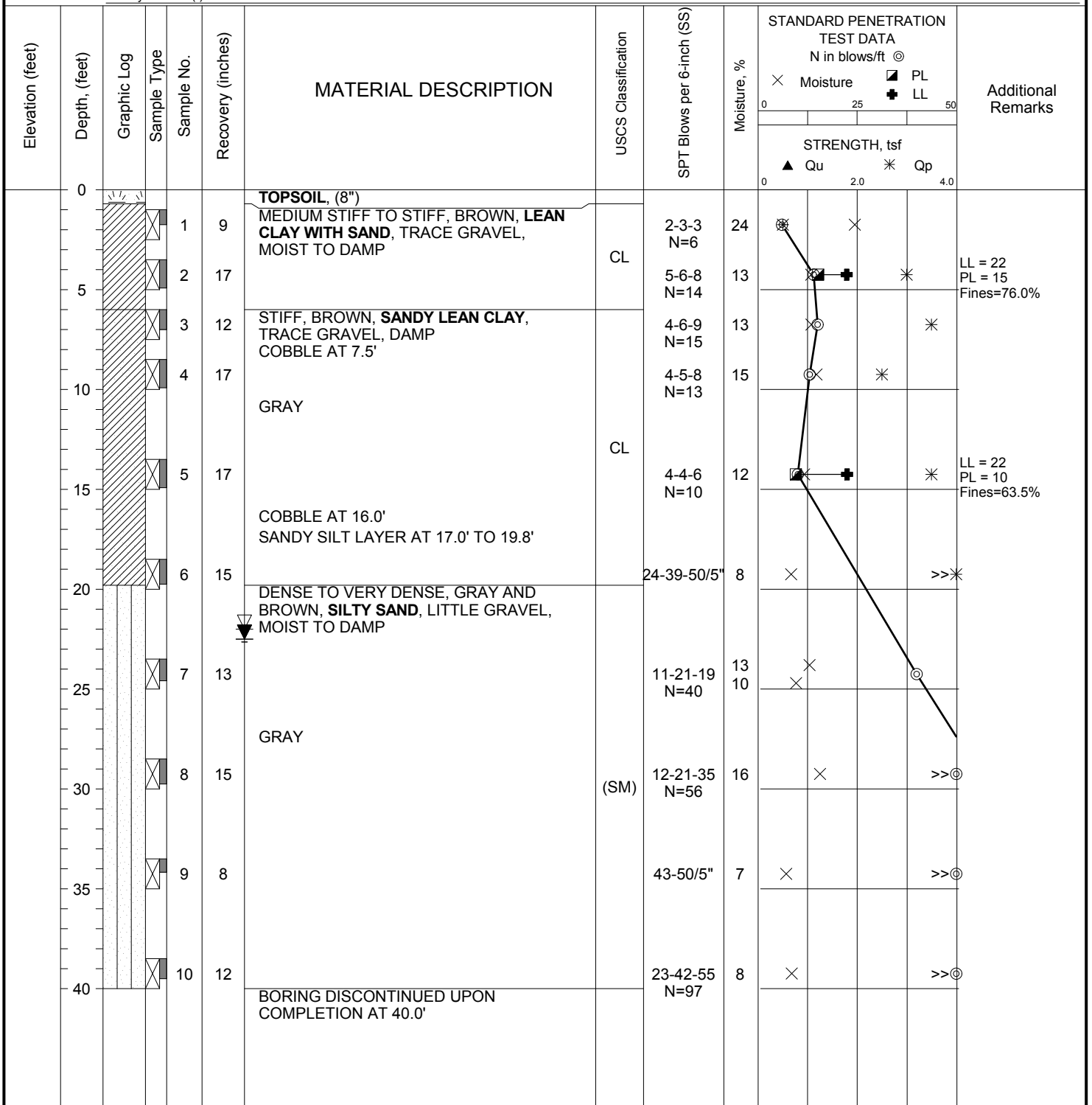
PROJECT NO.: 0102592
PROJECT: Water Resource Recovery Facility (WRRF)
LOCATION: Village of Ashville, Ohio

DATE STARTED: 11/14/13 **DRILL COMPANY:** PSI, Inc.
DATE COMPLETED: 11/14/13 **DRILLER:** J.E. **LOGGED BY:** J.E.
COMPLETION DEPTH: 40.0 ft **DRILL RIG:** CME 45 C ATV 2007
BENCHMARK: N/A **DRILLING METHOD:** Hollow Stem Auger
ELEVATION: N/A **SAMPLING METHOD:** 2-in SS
LATITUDE: 39.72113° **HAMMER TYPE:** Automatic
LONGITUDE: -82.9603° **EFFICIENCY:** 88%
STATION: N/A **OFFSET:** N/A **REVIEWED BY:** _____
REMARKS: Soil symbol in '()' = Visual Classification

BORING B-02

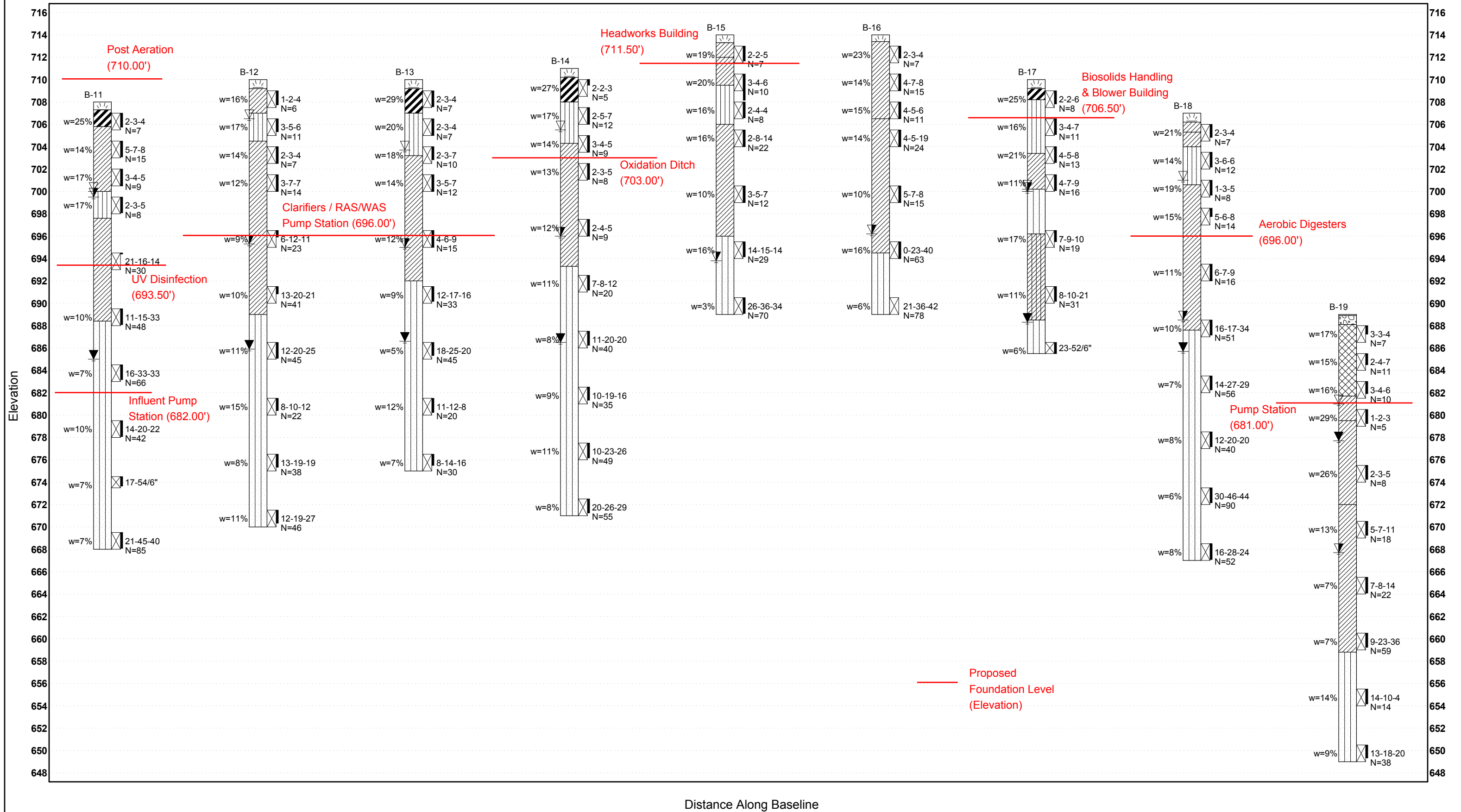
Water	▽ While Drilling	22.0 feet
	▼ Upon Completion	22.5 feet
	▽ Caved	22.5 feet

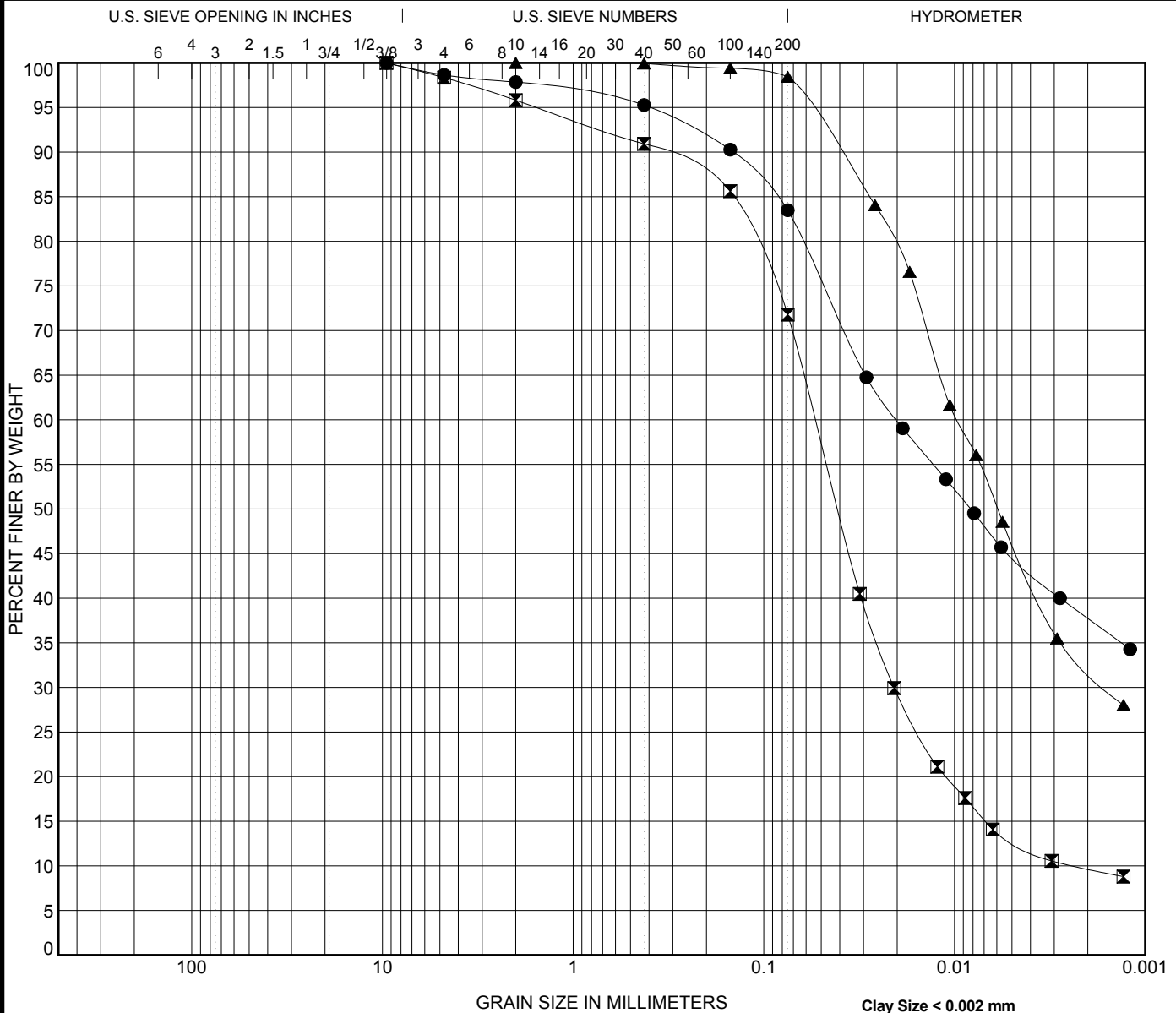
BORING LOCATION: _____



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 Telephone: (614) 876-8000

PROJECT NO.: 0102592
PROJECT: Water Resource Recovery Facility (WRRF)
LOCATION: Village of Ashville, Ohio





COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	LL	PL	PI	Cc	Cu
● B-13 1.8	Fat Clay with Sand (CH)	53	23	30		
☒ B-17 14.3	Silty Clay with Sand (CL-ML)	19	14	5	3.39	22.98
▲ B-19 14.3	Lean Clay (CL)	34	20	14		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-13 1.8	9.525	0.02			1.4	15.2	45.8	37.7
☒ B-17 14.3	9.525	0.054	0.021	0.002	1.7	26.6	62.1	9.7
▲ B-19 14.3	2	0.01	0.002		0.0	1.6	66.4	32.0



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GRAIN SIZE DISTRIBUTION

Project: Water Resource Recovery Facility (WRRF)
 PSI Job No.: 0102671
 Location: Village of Ashville, Ohio


Design Maps Detailed Report

2006/2009 International Building Code (39.72088°N, 82.95954°W)

Site Class D – “Stiff Soil”, Occupancy Category I/II/III

Section 1613.5.1 – Mapped acceleration parameters

Note: Maps in the 2006 and 2009 International Building Code are provided for Site Class

B. Adjustments for other Site Classes are made, as needed, in Section 1613.5.3.

From [Figure 1613.5\(1\)](#)^[1]

$S_s = 0.148 \text{ g}$

From [Figure 1613.5\(2\)](#)^[2]

$S_1 = 0.060 \text{ g}$

Section 1613.5.2 – Site class definitions

SITE CLASS	SOIL PROFILE NAME	Soil shear wave velocity, \bar{v}_s, (ft/s)	Standard penetration resistance, \bar{N}	Soil undrained shear strength, \bar{s}_u, (psf)
A	Hard rock	$\bar{v}_s > 5,000$	N/A	N/A
B	Rock	$2,500 < \bar{v}_s \leq 5,000$	N/A	N/A
C	Very dense soil and soft rock	$1,200 < \bar{v}_s \leq 2,500$	$\bar{N} > 50$	$> 2,000$ psf
D	Stiff soil profile	$600 \leq \bar{v}_s < 1,200$	$15 \leq \bar{N} \leq 50$	1,000 to 2,000 psf
E	Stiff soil profile	$\bar{v}_s < 600$	$\bar{N} < 15$	$< 1,000$ psf
E	—	Any profile with more than 10 ft of soil having the characteristics: <ol style="list-style-type: none"> 1. Plasticity index $PI > 20$, 2. Moisture content $w \geq 40\%$, and 3. Undrained shear strength $\bar{s}_u < 500$ psf 		
F	—	Any profile containing soils having one or more of the following characteristics: <ol style="list-style-type: none"> 1. Soils vulnerable to potential failure or collapse under seismic loading such as liquefiable soils, quick and highly sensitive clays, collapsible weakly cemented soils. 2. Peats and/or highly organic clays ($H > 10$ feet of peat and/or highly organic clay where H = thickness of soil) 3. Very high plasticity clays ($H > 25$ feet with plasticity index $PI > 75$) 4. Very thick soft/medium stiff clays ($H > 120$ feet) 		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Section 1613.5.3 — Site coefficients and adjusted maximum considered earthquake spectral response acceleration parameters

TABLE 1613.5.3(1)
VALUES OF SITE COEFFICIENT F_s

Site Class	Mapped Spectral Response Acceleration at Short Period				
	$S_s \leq 0.25$	$S_s = 0.50$	$S_s = 0.75$	$S_s = 1.00$	$S_s \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_s

For Site Class = D and $S_s = 0.148$ g, $F_s = 1.600$

TABLE 1613.5.3(2)
VALUES OF SITE COEFFICIENT F_v

Site Class	Mapped Spectral Response Acceleration at 1-s Period				
	$S_1 \leq 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \geq 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_1

For Site Class = D and $S_1 = 0.060$ g, $F_v = 2.400$

In the equations below, the equation number corresponding to the 2006 edition is listed first, and that corresponding to the 2009 edition is listed second.

Equation (16-37; 16-36): $S_{M5} = F_a S_5 = 1.600 \times 0.148 = 0.237 \text{ g}$

Equation (16-38; 16-37): $S_{M1} = F_v S_1 = 2.400 \times 0.060 = 0.145 \text{ g}$

Section 1613.5.4 — Design spectral response acceleration parameters

Equation (16-39; 16-38): $S_{D5} = \frac{2}{3} S_{M5} = \frac{2}{3} \times 0.237 = 0.158 \text{ g}$

Equation (16-40; 16-39): $S_{D1} = \frac{2}{3} S_{M1} = \frac{2}{3} \times 0.145 = 0.097 \text{ g}$

Section 1613.5.6 — Determination of seismic design category

TABLE 1613.5.6(1)
SEISMIC DESIGN CATEGORY BASED ON SHORT-PERIOD RESPONSE ACCELERATION

VALUE OF S_{DS}	OCCUPANCY CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \leq S_{DS} < 0.33g$	B	B	C
$0.33g \leq S_{DS} < 0.50g$	C	C	D
$0.50g \leq S_{DS}$	D	D	D

For Occupancy Category = I and $S_{DS} = 0.158g$, Seismic Design Category = A

TABLE 1613.5.6(2)
SEISMIC DESIGN CATEGORY BASED ON 1-SECOND PERIOD RESPONSE ACCELERATION

VALUE OF S_{D1}	OCCUPANCY CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \leq S_{D1} < 0.133g$	B	B	C
$0.133g \leq S_{D1} < 0.20g$	C	C	D
$0.20g \leq S_{D1}$	D	D	D

For Occupancy Category = I and $S_{D1} = 0.097g$, Seismic Design Category = B

Note: When S_1 is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Occupancy Categories I, II, and III, and **F** for those in Occupancy Category IV, irrespective of the above.

Seismic Design Category \equiv "the more severe design category in accordance with Table 1613.5.6(1) or 1613.5.6(2)" = B

Note: See Section 1613.5.6.1 for alternative approaches to calculating Seismic Design Category.

References

1. Figure 1613.5(1): [http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/IBC-2006-Figure1613_5\(01\).pdf](http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/IBC-2006-Figure1613_5(01).pdf)
2. Figure 1613.5(2): [http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/IBC-2006-Figure1613_5\(02\).pdf](http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/IBC-2006-Figure1613_5(02).pdf)

GENERAL NOTES

SAMPLE IDENTIFICATION

The Unified Soil Classification System is used to identify the soil unless otherwise noted.

SOIL PROPERTY SYMBOLS

- N: Standard "N" penetration: Blows per foot of a 140-pound hammer falling 30 inches on a 2-inch O.D. split-spoon.
- q_u: Unconfined Compressive Strength, tsf
- q_p: Penetrometer Value, Unconfined Compressive Strength, tsf
- w_c: Water Content, %
- LL: Liquid Limit, %
- PI: Plasticity Index, %
- δ_d: Natural Dry Density, pcf
- ∇: Apparent Groundwater Level at time noted after completion of boring.

DRILLING AND SAMPLING SYMBOLS

- SS: Split-Spoon – 1-3/8" I.D., 2" O.D., except where noted.
- ST: Shelby Tube – 3" O.D., except where noted.
- AU: Auger Sample
- DB: Diamond Bit
- CB: Carbide Bit
- WS: Washed Sample

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

<u>TERM (NON-COHESIVE SOILS)</u>	<u>STANDARD PENETRATION RESISTANCE</u>
Very Loose	0 – 4
Loose	4 – 10
Medium	10 – 30
Dense	30 – 50
Very Dense	Over 50
<u>TERM (COHESIVE SOILS)</u>	<u>q_u – (tsf)</u>
Very Soft	0 – 0.25
Soft	0.25 – 0.50
Firm (Medium)	0.50 – 1.00
Stiff	1.00 – 2.00
Very Stiff	2.00 – 4.00
Hard	4.00 +

PARTICLE SIZE (ASTM D-2487 AND D-422)

Boulders	≥12 in. (300mm)	Medium Sand	<2mm (#10 sieve) to 425μm (#40 sieve)
Cobbles	<12 in. (300mm) to 3 in. (75mm)	Fine Sand	<425μm (#40 sieve) to 75μm (#200 sieve)
Gravel	<3 in. (75mm) to 4.75mm (#4 sieve)	Silt	<75μm (#200 sieve) to 5μm
Coarse Sand	<4.75mm (#4 sieve) to 2mm (#10 sieve)	Clay	<5μm

SOIL CLASSIFICATION CHART

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

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

SECTION 00 4113

UNIT PRICE BID FORM

PART 1 GENERAL

From: _____
Name of Bidder

Address & Zip of Bidder

Area Code & Telephone Number of Bidder

To: Village of Ashville, Ohio
Village Administration Building
200 East Station Street
Ashville, OH 43103

Gentlemen:

Having examined the contract documents entitled:

VILLAGE OF ASHVILLE, OHIO
SANITARY SEWER IMPROVEMENTS 2016 (PART B)

Prepared by AECOM, 277 W. Nationwide Blvd., Columbus, Ohio 43215, for the construction of the project, and having inspected the site and the conditions affecting and governing the construction of the project, the undersigned hereby proposes to furnish all material and perform all labor specified and described in the specifications and shown on the drawings for the work for the prices and within the times indicated in this Bid, and in accordance with the other terms and conditions of the Bidding Documents.

1.1 BIDDER OWNER AGREEMENT

- A. The Owner has the option of awarding bid based on the Owners preference of the type of equipment desired. Once equipment is selected, each bidder's associated pipe cost will be inserted into the appropriate base bid line items and compared in order to determine the low bid. This method of selecting equipment does not obligate the Owner to select the lowest price equipment.
- B. It is mandatory to state prices for all Alternatives. Any bid without Alternate pricing shall be considered nonresponsive. The Owner reserves the right to award project based on the best responsive bid.
- C. Owner reserves the right to accept or reject any Alternatives to the computed total base bid, regardless of cost.
- D. Addenda

1. All Addenda, revised drawings and bulletins issued have been included in this bid and are listed below:

2. The Contractor is to acknowledge receipt of Addendum below. Enter date and initial.

Addendum	Dated	Received By	Addendum	Dated	Received By
No. 1	_____	_____	No. 4	_____	_____
No. 2	_____	_____	No. 5	_____	_____
No. 3	_____	_____	No. 6	_____	_____

E. Completion Time: It is understood and agreed that work embodied in this contract, together with the alterations thereto, if any, shall be substantially complete within 305 days, and complete with 365 days from the date of entering into the contract therefore.

F. Commencement of Work: Work shall start within 10 days of signing the Contract.

G. Liquidated Damages: The undersigned has read the liquidated damages clause in the Instructions to Bidders and agrees to its terms.

H. Bond: The undersigned agrees to furnish a Performance Bond and a Labor and Material Payment Bond as described in the Instructions to Bidders.

I. Bid Package: The bid package consists of the following forms:

1. Section 00 2113, "Instructions to Bidders". (for information only)
2. Section 00 4113, "Unit Price Bid Form".
3. Section 00 4313, "Bid Security".
4. Section 00 4325, "Substitution Request Form".
5. Section 00 4336, "Proposed Subcontractor's Form".
6. Section 00 4513, "Bidder's Qualifications".
7. Section 00 4515, "OEPA WPCLF Program Requirements"
 - a. Contractor Equal Employment Opportunity (EEO) Certification
 - b. Certification Regarding Debarment, Suspension, and Other Responsibility Matters.
 - c. DBE Forms 1A and 1B
 - 1) To be submitted with bid package OR within 2 weeks of bid opening.
 - d. American Iron & Steel Sign-off Form.
8. Section 00 4519, "Non-Collusion Affidavit".
9. Section 00 4529, "Personal Property Tax Disclosure Affidavit".

1.2 UNIT PRICE SCHEDULE

A. Notes to Bidders

1. The price quoted shall include all items of labor, materials, tools, equipment, insurance and other costs necessary to fully complete the work pursuant to the CONTRACT DOCUMENTS. It is the intention of the Contract Documents to provide and require a completed work Project ready for operation. Any work items omitted from such Contract Documents which are clearly necessary for the completion of such work and its appurtenances shall be considered a part of such work although not directly specified or called for in the Contract Documents.
2. An increase or decrease in the quantity for any unit price item will not be regarded as a sufficient ground for an increase or decrease in the unit prices, nor in the time allowed for the completion of the work, except as provided for in the Contract.

3. The Owner reserves the right to accept or reject any or all of the following unit prices prior to the execution of the contract.
 4. All extensions of the unit prices shown will be subject to verification by the Owner. In case of variation between the unit price and the extension, the unit price will be considered to be the bid.
 5. All quantities are estimated except where the item is given as Lump Sum.
 6. The contract shall be awarded on the basis of the total lowest responsive and responsible Base Bid.
- B. Description of Bid Item: A general description of the work included in each bid item is listed in Division 01 Section "Measurement and Payment".

<u>LINE NO.</u>	<u>ODOT NO.</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QTY</u>	<u>LABOR</u>	<u>MATERIAL</u>	<u>SUM OF LABOR & MATERIAL</u>	<u>BID PRICE</u>
1	201	Clearing and Grubbing	L.S.	1				
2	201	Tree Removal > 15 inches	E.A.	1				
3	202	Fence Removed and Reinstalled	L.F.	20				
4	202	Storm Structures Removed	EA.	7				
5	202	Manhole Abandoned In-place	EA.	1				
6	202	Portions of Structure Removed (As Directed)	C.Y.	5				
7	202	Abandoned Pipe In-place, 24 Inches and Under	EA.	120				
8	202	Pipe Removed, 24 Inches and Under	L.F.	551				
9	202	Cut and Plug Conduit Opening Through 12 Inches	EA.	2				
10	202	Cut and Plug Conduit Opening Through 24 Inches	EA.	10				
11	203	Embankment Improvements W/ 4" Gravel base	C.Y.	32				
12	207	Temporary Sediment and Erosion Control	L.S.	1				

<u>LINE NO.</u>	<u>ODOT NO.</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QTY</u>	<u>LABOR</u>	<u>MATERIAL</u>	<u>SUM OF LABOR & MATERIAL</u>	<u>BID PRICE</u>
13	253	Temporary Pavement (Village Roads)	S.Y.	63				
14	253	Temporary Pavement (Main Street-State Route 316 Crossing)	S.Y.	71				
15	254	Pavement Planing, Asphalt Concrete	C.Y.	54				
16	407	Tack Coat	GAL	468				
17	448	1.5-inch Asphalt Concrete Surface Course, Scioto St.	C.Y.	49				
18	448	1.5-inch Asphalt Concrete Surface Course, Lexington Ave.	C.Y.	49				
19	Spec.	Driveway Replacement, Gravel (To Include Alley)	C.Y.	366				
20	Spec.	Gravel Driveway Replacement w/ Asphalt Pavement Course (Haddox Property)	C.Y.	211				
21	Spec.	Temporary Gravel Parking Area on Village of Ashville Property (For Haddox Property)	C.Y.	65				
22	Spec.	12'x10' Rubber Speed Bumps (For Haddox Property)	EA.	2				
23	Spec.	6' Concrete Parking Blocks, ODOT RM-6-1 (For Haddox Property)	EA.	26				
24	Spec.	Deteriorated Asphalt Replacement with 6" Gravel Base and Type "D" Geotextile Fabric (For Haddox Property)	S.F.	2,588				

LINE NO.	ODOT NO.	DESCRIPTION	UNIT	QTY	LABOR	MATERIAL	SUM OF LABOR & MATERIAL	BID PRICE
25	Spec.	Driveway Replacement, Concrete	C.Y.	15				
26	Spec.	Pavement Replacement Type 1, Main Street-State Route 316	C.Y.	23				
27	Spec.	Pavement Replacement, Village Streets	C.Y.	400				
28	604	Type "C" Sanitary Manhole with 48-Inch Base	EA.	18				
29	604	Type "C" Sanitary Manhole with 60-Inch Base	EA.	7				
30	604	Type "C" Sanitary Manhole with 48-Inch Base, Outside Drop	EA.	1				
31	604	Type "C" Sanitary Manhole with 60-Inch Base, Outside Drop	EA.	1				
32	604	Type "C" Sanitary Manhole with 72-Inch Base, Outside Drop	EA.	0				
33	604	Type "E" Sanitary Manhole with 48-Inch Base	EA.	2				
34	604	Type "C" Storm Manhole with 48-Inch Base and Grated Lid	EA.	1				
35	604	Type "E" Storm Manhole with 60-Inch Base and Solid Lid	EA.	1				
36	604	Odot 2x2 Catch Basin	EA.	1				

<u>LINE NO.</u>	<u>ODOT NO.</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QTY</u>	<u>LABOR</u>	<u>MATERIAL</u>	<u>SUM OF LABOR & MATERIAL</u>	<u>BID PRICE</u>
37	604	4-inch Drain Inlet	EA.	2				
38	604	Odot 2x3 Curb Inlet	EA.	2				
39	604	Headwall for 18 Inch pipe	EA.	1				
40	604	Reconstruct Manhole Bench and Channel, As Directed	EA.	2				
41	604	Sanitary Manhole with 48-Inch Base, As Directed	EA.	1				
42	607	Fence Replaced with Type CLT 60-Inch Chain Link	L.F.	305				
43	608	4-Inch Concrete Sidewalk Replacement	S.F.	2,160				
44	609	Concrete Curb and Gutter	L.F.	24				
45	611	4-Inch PVC SRD35 Sanitary Sewer with Type 1 Bedding and Compacted Backfill	L.F.	14				
46	611	4-Inch PVC SRD35 Sanitary Sewer with Type 1 Bedding and Compacted Granular Backfill	L.F.	60				
47	611	6-Inch PVC SRD35 Sanitary Sewer with Type 1 Bedding and Compacted Backfill	L.F.	14				
48	611	6-Inch PVC SRD35 Sanitary Sewer with Type 1 Bedding and Compacted Granular Backfill	L.F.	14				

LINE NO.	ODOT NO.	DESCRIPTION	UNIT	QTY	LABOR	MATERIAL	SUM OF LABOR & MATERIAL	BID PRICE
49	611	8-Inch PVC SRD35 Sanitary Sewer with Type 1 Bedding and Compacted Granular Backfill	L.F.	45				
50	611	8-Inch PVC SRD35 Sanitary Sewer with Type 1 Bedding and Compacted Backfill	L.F.	53				
51	611	18-Inch PVC PS46 Sanitary Sewer with Type 1 Bedding and Compacted Granular Backfill	L.F.	796				
52	611	18-Inch PVC PS46 Sanitary Sewer with Type 1 Bedding and Compacted Backfill	L.F.	809				
53	611	24-Inch PVC PS46 Sanitary Sewer with Type 1 Bedding and Compacted Granular Backfill	L.F.	3,553				
54	611	24-Inch PVC PS46 Sanitary Sewer with Type 1 Bedding and Compacted Backfill	L.F.	1,432				
55	611	18-Inch PVC PS46 Storm Sewer with Type 1 Bedding and Compacted Granular Backfill	L.F.	71				
56	611	18-Inch PVC PS46 Storm Sewer with Type 1 Bedding and Compacted Backfill	L.F.	58				
57	613	Flowable Controlled Density Fill (FCDF)	C.Y.	20				
58	614	Maintaining Traffic, As Per Plan	L.S.	1				
59	623	Construction Layout Stakes	L.S.	1				
60	624	Mobilization	L.S.	1				

LINE NO.	ODOT NO.	DESCRIPTION	UNIT	QTY	LABOR	MATERIAL	SUM OF LABOR & MATERIAL	BID PRICE
61	638	4-Inch PVC DR25 Class 165 With Fittings, Water Main Compacted Granular Backfill	L.F.	354				
62	638	10-Inch PVC DR25 Class 165 With Fittings, Sewer Force Main Compacted Granular Backfill	L.F.	2,982				
63	638	10-Inch PVC DR25 Class 165 With Fittings, Sewer Force Main with Compacted Backfill	L.F.	1,838				
64	638	4-inch Tapping Sleeve, Valve, and Valve Box	EA.	1				
65	638	4x6"-inch Tapping Sleeve, Valve, and Valve Box	EA.	1				
66	638	10-inch Force Main Air Release Valve, Complete W/ Structure	EA.	2				
67	638	10-inch Force Main Clean Out Assembly	EA.	4				
68	659	Seeding and Mulching, Class 2	S.F.	87,765				
69	Spec.	Core Drill and Boot Existing Manhole, As Per Plan	EA.	2				
70	Spec.	Dewatering	L.S.	1				
71	Spec.	Bypass Pumping, As Directed	L.S.	1				
72	Spec.	Field Tile, Underdrain, Perimeter Drain, Culvert, Sanitary Sewer Service, Leach Field Pipe, Water Line, and Gas Line Repair/Replacement, As Directed	L.F.	260				

1.3 RIGHTS RESERVED

A. In submitting this Proposal, it is understood that the right is reserved by the Owner to reject any and all bids, or part of any bid, and it is agreed that the proposal may not be withdrawn for a period of sixty (60) days subsequent to the opening of bids, without the consent of the Owner.

1. If bidder is a corporation, fill in these blanks.

Name of Corporation

State in which incorporated

Signature of an officer authorized to make this agreement. If other than a President or Vice President a copy of the resolution giving authorization from The Board of Directors is required.

Address of Corporate Headquarters
(w/Zip Code)

() _____
Area Code, Telephone Number

Signature of Officer

Officers Printed Name & Corporate Office

Business Address – Zip Code

() _____
Area Code, Telephone Number

2. If bidder is a foreign corporation, fill in the following in addition to the above.

Statutory Agent

Address of Statutory Agent (w/Zip Code)

()

Area Code, Telephone Number

3. If the bidder is a partnership, fill in the following blanks:

Name of Partnership

List Names of Each Partner

Signature of at least one partner

Member of Firm

Business Address (w/Zip Code)

()

Area Code, Telephone Number

4. If the bidder is an individual, fill in the following blanks:

Signature of Individual

Business Address (w/Zip Code)

()

Area Code, Telephone Number

B. Substitution Sheet

1. All base bids shall be based upon the materials and/or equipment specified.
2. Bidders desiring to make substitutions shall list such proposed substitutions below, together with the amount of money to be added to or deducted from the amount of their base bid.

3. Substitution, if any, must be submitted with this bid.
4. Complete specifications and descriptions of any items the bidder proposes to substitute shall be furnished with, and be attached to his bid.

Brand or Make Specified	Proposed Substitution	Add	Deduct
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 00 4113

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SECTION 00 4313

BID SECURITY

FORM OF BID GUARANTY AND CONTRACT BOND
(As prescribed by Ohio Revised Code Section 153.571)

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned,

_____, as Principal, at

_____ (Address)

and _____ as Surety, are hereby held and firmly bound unto the Village of Ashville, Ohio, as Obligee, in the penal sum of the dollar amount of the Bid submitted by the Principal to the Obligee on (date) _____ to undertake the Project known as:

Project Name: Village of Ashville, Ohio Sanitary Sewer Improvements 2016 (Part B)

The penal sum, referred to herein, shall be the dollar amount of the Principal's Bid to the Obligee, incorporating any additive alternate Bids made by the Principal on the date referred to above to the Obligee, which are accepted by the Obligee. In no case shall the penal sum exceed the amount of dollars (\$_____). (If the preceding line is left blank, the penal sum will be the full amount of the Principal's Bid, including add alternates. Alternatively, if completed, the amount stated shall not be less than the full amount of the Bid, including Alternates, in dollars and cents. A percentage is not acceptable.) For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above-named Principal has submitted a Bid for the above referenced Project;

NOW, THEREFORE, if the Obligee accepts the Bid of the Principal, and the Principal fails to enter into a proper contract in accordance with the Contract bid, Plans, Specifications, details and bills of material; and in the event the Principal pays to the Obligee the difference, not to exceed ten percent of the penal sum hereof between the amount specified in the Bid and such larger amount for which the Obligee may in good faith contract with the Bidder determined by the Obligee to be the next lowest responsive and

responsible to perform the Work covered by the Bid; or in the event the Obligee does not award the Contract to such next lowest responsive and responsible Bidder and resubmits the Project for bidding, the Principal pays to the Obligee the difference not to exceed ten percent of the penal sum hereof between the amount specified in the Bid, or the costs, in connection with the resubmission, of printing new Contract Documents, required advertising and printing and mailing notices to prospective Bidders, whichever is less, then this obligation shall be null and void, otherwise to remain in full force and effect. If the Obligee accepts the Bid of the Principal, and the Principal, within 10 days after the awarding of the Contract, enters into a proper Contract and executes the Contract Form in accordance with the Contract Documents, including without limitation the Bid, Plans, Specifications, details, and bills of material, which said Contract is made a part of this Bond the same as though set forth herein; and

NOW ALSO, IF THE SAID Principal shall well and faithfully perform each and every condition of such Contract; and indemnify the Obligee against all damage suffered by failure to perform such Contract according to the provisions thereof and in accordance with the Contract Documents, including without limitation Plans, Specifications, details, and bills of material therefore; and shall pay all lawful claims of Subcontractors, Material Suppliers and laborers for labor performed and materials furnished in the carrying forward, performing or completing of said Contract; we, agreeing and assenting that this undertaking shall be for the benefit of any Subcontractor, Material Suppliers or laborer having a just claim, as well as for the Obligee herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

THE SAID Surety hereby stipulates and agrees that no modifications, omissions or additions, in or to the terms of said Contract, the Work thereunder or the Contract Documents, including without limitation the Plans and Specifications, therefore, shall in any way affect the obligations of said Surety on its bond, and it does hereby waive notice of any such modifications, omissions or additions in or to the terms of the Contract, the Work, or the Contract Documents, including without limitation the Plans and Specifications.

SIGNED AND SEALED this _____ day of _____, _____

PRINCIPAL:

By: _____

Title: _____

SURETY: _____

By: _____
Attorney-in-Fact

SURETY INFORMATION:

Street

City State Zip

Telephone Number

SURETY AGENT'S INFORMATION:

Agency Name

Street

City State Zip

Telephone Number

END OF SECTION 00 4313

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SECTION 00 4325

SUBSTITUTION REQUEST FORM

PART 1 GENERAL

1.1 CONDITIONS OF SUBSTITUTION

- A. Submit Bids based upon the materials and equipment specified.
- B. List proposed substitutions below, together with the sum to be added to or deducted from the amount of the Base Bid. The amount to be added or deducted shall include all related required changes resulting from the substitution such as all required time and fees for the Engineer.
- C. After the Contract is awarded, no further substitutions will be permitted for the items listed.

LIST OF PROPOSED SUBSTITUTIONS

<u>Item</u>	<u>Proposed Substitution</u>	<u>Add</u>	<u>Deduct</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

PART 2 - PRODUCT (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 00 4325

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SECTION 00 4336

PROPOSED SUBCONTRACTORS FORM

PART 1 GENERAL

- A. List the subcontractors that the Bidder is proposing. As a minimum, indicate the electrical (if applicable) and directional drilling subcontractor (if applicable).

LIST OF PROPOSED SUBCONTRACTORS

Subcontractor Name and Address		Service to Be Provided

END OF SECTION 00 4336

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SECTION 00 4393

BIDDER'S CHECKLIST

**VILLAGE OF ASHVILLE, OHIO
SANITARY SEWER IMPROVEMENTS 2016 (PART B)**

DISCLAIMER - This checklist is not intended to relieve the bidder of the responsibility to provide other required documents. Rather, this checklist is offered merely to serve as an aid in assisting in the preparation of the bid. Notice is hereby given that the failure to submit all required documents duly and properly completed including but not limited to all required signatures may result in the rejection of your bid on the basis that the bid is non-responsive.

BID DOCUMENT FORMS (PROVIDED)

- Instructions to Bidders, Section 00 2113 (for information only)
- Bid Form – Lump Sum (Single-Prime Contract), Section 00 4113
- Bid Security Form, Section 00 4313
- Substitution Request Form, Section 00 4325
- Proposed Subcontractors Form, Section 00 4336
- Bidder's Qualifications, Section 00 4513
- Non-Collusion Affidavit, Section 00 4519
- Personal Property Tax Disclosure Affidavit, Section 00 4529

OHIO EPA/DEFA GOVERNMENT REQUIRED FORMS (PROVIDED)

- Contractor EEO Certification, Section 00 4515
- DBE FORMS 1A & 1B, Section 00 4515 (to be submitted with bid package OR within two weeks of bid opening)
- Certification Regarding Debarment, suspension, and Other Responsibility Matters, Section 00 4515
- American Iron & Steel Sign-off Form, Section 00 4515

ADDITIONAL BID DOCUMENTS REQUIRED FROM BIDDER

- Surety's Power of Attorney
- Certificate of Authorization to do Business in Ohio (if applicable)

END OF SECTION 00 4393

SECTION 00 4513

BIDDER'S QUALIFICATIONS

At the time of bid, the bidder is required to provide detailed information on the form herein (or referenced and attached hereto) as evidence of the bidder's responsibility, experience, skill, and financial capacity to complete this contract in the time allotted. This information will be used by the owner to determine if the proposal is the lowest responsible and responsive bid. The Owner may make related investigations to determine the ability of the bidder to perform the work. The bidder shall furnish to the Owner or its representative, in a timely manner, all such information and data as the Owner may request for this purpose, which may include a financial statement.

1. General Information

Name: _____

Address: _____

Names, Titles, and Years of Experience of Company Officers and Key Supervisory Personnel:

Address for Administration of this Contract: _____

Years in Business as a Contractor: _____

Former Names of the Organization: _____

Certification of legal qualifications to do business at the project site.

Bank References: _____

Surety for this Project: _____

Name of Bonding Company: _____

Name and Address of Agent: _____

Major equipment owned and available to be used on this Project: _____

Major equipment to be rented for use on this Project: _____

2. Provide the following information for similar projects completed within the last 5 years, within a 500-mile radius of the project site (add sheets if necessary). A similar project shall be defined only as including a wastewater treatment plant with similar size and complexity.

A. Owner: _____ Contact Person and Phone No.: _____

Project: _____ Original Contract Amount: _____

Original Completion Date: _____ Final Contract Amount: _____

Final Completion Date: _____

B. Owner: _____ Contact Person and Phone No.: _____

Project: _____ Original Contract Amount: _____

Original Completion Date: _____ Final Contract Amount: _____

Final Completion Date: _____

C. Owner: _____ Contact Person and Phone No.: _____

 Project: _____ Original Contract Amount: _____

 Original Completion Date: _____ Final Contract Amount: _____

 Final Completion Date: _____

D. Owner: _____ Contact Person and Phone No.: _____

 Project: _____ Original Contract Amount: _____

 Original Completion Date: _____ Final Contract Amount: _____

 Final Completion Date: _____

E. Additional Sheets

3. Provide the following information for similar projects within a 500-mile radius of the project site that are currently under construction (add sheets if necessary). A similar project shall be defined only as including a wastewater treatment plant with similar size and complexity:

A. Owner: _____ Contact Person and Phone No.: _____

 Project: _____ Original Contract Amount: _____

 Original Completion Date: _____ Final Contract Amount: _____

 Final Completion Date: _____

B. Owner: _____ Contact Person and Phone No.: _____

 Project: _____ Original Contract Amount: _____

 Original Completion Date: _____ Final Contract Amount: _____

 Final Completion Date: _____

C. Owner: _____ Contact Person and Phone No.: _____

 Project: _____ Original Contract Amount: _____

 Original Completion Date: _____ Final Contract Amount: _____

 Final Completion Date: _____

D. Owner: _____ Contact Person and Phone No.: _____

 Project: _____ Original Contract Amount: _____

 Original Completion Date: _____ Final Contract Amount: _____

 Final Completion Date: _____

E. Additional Sheets

END OF SECTION 00 4513

SECTION 00 4515

OEPA WPCLF PROGRAM REQUIREMENTS

PART 1 GENERAL

1.1 OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) – WATER POLLUTION CONTROL LOAN FUND (WPCLF)

- A. The contract work described in the Contract Documents is being funded in part with loan and loan forgiveness funds from the OEPA WPCLF Program. All requirements of the OEPA WPCLF Program must be followed and complied with by all bidders and the successful contractor.

1.2 CONTRACTOR'S REQUIREMENTS

- A. The following requirements are included in the Contract for the work and are a part thereof:
1. Contractor Equal Employment Opportunity Certification (2 pages)
 2. Certification Regarding Debarment, Suspension, and Other Responsibility Matters Form (2 pages)
 3. Certification Regarding Debarment, Suspension, and Other Responsibility Matters Instructions (1 page)
 4. Disadvantaged Business Enterprises (DBE) Utilization (5 pages)
 5. Form 1A: DBEP Indiv. DBE Subcontractor Proposed Performance Form (1 page)
 6. Form 1B: DBEP DBE Subcontractor Utilization Summary (1 page)
 7. Form 2: DBEP DBE Subcontractor Actual Participation Form (1 page)
 8. Form 5700-52A: USEPA MBE/WBE Utilization Under Federal Grants, Cooperative Agreements, and Interagency Agreements (2 pages)
 9. Form 5700-52A: Instructions (3 pages)
 10. Davis-Bacon Wage Rate Requirements (10 pages)
 11. Violating Facilities Clause (1 page)
 12. Requirement for Utilization of Small Businesses in Rural Areas (SBRA) (1 page)
 13. Insurance Provisions (2 pages)
 14. Materials Testing (1 page)
 15. Continuous Treatment Provisions (1 page)
 16. WPCLF/WSRLA Change Order (2 pages)
 17. Local Protest Procedure (1 page)
 18. Basis and Method for Award (2 pages)
 19. Payment Methods (2 pages)
 20. WPCLF Contract Documents Review (1 page)
 21. Bid Package Submittals (1 page)
 22. American Iron & Steel Provisions (20 pages)
 23. American Iron & Steel Sign-off Form (1 page)
 24. American Iron & Steel Certification Form (1 page)

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 00 4515

Contract Document Provisions

The following contract requirements and forms are to be included in the construction contract documents. Completed copies of the forms are to be submitted to Ohio EPA – DEFA within one week after bids are received, or sooner dependent on your individual project schedule.

[Equal Employment Opportunity \(EEO\) Requirements](#)

The Contractor's EEO Certification Form must be (1) included in the contract documents and (2) referenced in the Instructions to Bidders, informing bidders that the form must be completed and submitted with their bid.

NOTE: If the loan applicant has its own EEO requirements, local procedures and forms may be substituted for the EPA form.

[Debarment](#)

The Certification Regarding Debarment, Suspension, and Other Responsibility Matters must be (1) included in the contract documents and (2) referenced in the Instructions to Bidders, informing bidders that the form must be completed and submitted with their bid.

[Disadvantaged Business Enterprises \(DBE\) Utilization](#)

The DBE Specification language and instructions to the bidders and Forms 1A, 1B and 2 must be (1) included in the contract documents and (2) referenced in the Instructions to Bidders, informing bidders that the forms must be completed and submitted with their bid.

NOTE: If the loan applicant has its own DBE requirements or if other funding programs with potentially competing DBE requirements are participating in the project funding, please contact Ohio EPA – DEFA for specific instructions regarding the DBE requirements.

[Davis-Bacon wage rate requirements](#)

The contract documents must include language that requires contractors and subcontractors to pay wages at rates not less than those prevailing on similar projects within the area as determined by the US Secretary of Labor. In addition, the loan recipient will be required to conduct wage interviews and monitor payroll for compliance.

The following contract requirements are to be included in the construction contract documents, but are not required to be submitted to Ohio EPA – DEFA for contract endorsement.

[Violating Facilities Clause](#)

Language prohibiting this use of equipment or services from anyone on the EPA List of Violating Facilities must be included in the contract documents.

[Small Businesses in Rural Areas \(SBRA\)](#)

Language encouraging the participation of small businesses in rural areas should be included in the contract documents.

[Insurance Provisions](#)

Section 3.5 of the WPCLF Loan Agreement contains specific requirements regarding insurance for all contractors and all subcontractors for the life of the contract. These insurance requirements must be reflected in the contract documents. Adjust the language as needed to meet the specifics of the construction project while still meeting the provisions of the Loan Agreement.

[Materials Testing](#)

In addition to the details included with specific equipment testing in the specifications, there should be an overall statement regarding testing for the project. Adjust the language as needed to meet the specifics of the construction project.

[Continuous Treatment Provisions](#)

It is important that construction activities not result in any temporary violations of NPDES permit requirements (for permitted facilities) and construction activities should interrupt wastewater service to the individual resident as little as possible. This example language is intended for construction work occurring at an existing WWTP, and must be adjusted to meet the specifics of the construction project.

[WPCLF/WSRLA Change Order Form](#)

All change orders for the construction project must be executed on the WPCLF/WSRLA change order form. The form must be (1) included in the contract documents and (2) the instructions referenced in the Contract Documents.

The following contract requirements are provided in Ohio Revised Code (ORC). Some loan applicants have local requirements that supersede ORC provisions for competitive bidding, and these local requirements can be applied instead of ORC, except for those requirements specified in the WPCLF loan agreement.

Bid Guarantee

The requirements for a bid guarantee (which can be a bond or a certified check, cashier's check, or letter of credit) are covered in ORC 153.54.

Payment and Performance Bonds

The requirements for a Payment and Performance Bond are covered in ORC 153.54 and Section 3.4 of the WPCLF Loan Agreement.

Payment Retention

The requirement for payment retainage is provided in ORC 153.12. Details on how the escrow account that holds the retainage are provided in ORC 153.13. Further details on how and when to pay for materials delivered and installed are provided in ORC 153.14.

Completion Time

The contract documents must state the length of the contract time per ORC 153.19. The dates for Initiation of Operation and Project Completion are specified in the WPCLF Loan Agreement, and need to coincide with the specified contract time.

The following are contract provisions to consider, but are not required. The language provided for each are samples only and must be adjusted to reflect the specifics of the project and local needs.

Local Protest Procedure

Some statement as to when a valid protest must be filed, in what form it must be filed and who it must be filed with should be included. ORC 153.12 has some default procedures for handling disputes. If the owner wants more control than provided in ORC, a procedure needs to be spelled out in the Contract Documents.

Basis and Method for Award

The contract documents should include some language that clearly states what the Owner will consider when determining the successful bidder and to provide a clear basis for the Owner when they have a need to reject the low bidder and go with a different bidder.

Payment Methods

To minimize uncertainty and arguments that can slow down the progress of construction it is useful to provide language stating how and when the Contractor will get paid. In addition to ORC and other local requirements, the involvement of public funding Agencies such as the WPCLF, Ohio Public Works Commission and Community Development Block Grant impact the process and timing for payments.

Contract Documents Review

Whenever possible, all of the provisions listed above must be included in the contract documents for the project prior to advertisement for bids. Ohio EPA's review for these contract provisions will occur as part of our normal detail plans and specifications review. The bidding documents are to be submitted to Ohio EPA for review regardless of whether a Permit to Install or a Plan Approval is required for the project.

After bidding has started:

In those cases when WPCLF or WSRLA funding is being requested after advertisement for bids has started, add all missing contract provisions, forms, and requirements via addendum.

After bids have been opened but before contracts have been signed:

If the bid advertisement period is over and bids have been opened, but the construction contract have not been signed yet, provide a draft contract change order which would be used to incorporate all missing contract provisions, forms, and requirements into the contract. This should be done in consultation with local legal council to address any potential bid protest concerns.

Construction contracts have already been signed:

If the construction contract has already been signed, a contract change order must be executed incorporating all missing contract provisions, forms, and requirements into the contract.

A [Contract Documents Review checklist](#) is provided here to help ensure that all requirements are included and to help expedite Ohio EPA's review of your documents.

Bid Package Submittals

Certain documents must be submitted to Ohio EPA – DEFA within one week after bids are received, or sooner dependent on your individual project schedule. Please [look here for a complete list](#) of the required submittals.

NOTE: THE CONTRACT LANGUAGE SAMPLES PROVIDED HEREIN ARE EXAMPLES OF WHAT COULD BE INCLUDED IN ALL CONTRACTS THAT USE WPCLF OR WSRLA FUNDS. OHIO EPA MAKES NO CLAIMS REGARDING THE LEGALITY OF THESE CLAUSES WITH RESPECT TO STATE OR LOCAL LAW. IT IS IMPERATIVE THAT ANY PARTY INSERTING THESE CLAUSES INTO A CONTRACT VERIFY THAT THEY ARE LEGAL AND ENFORCEABLE ACCORDING TO STATE AND LOCAL LAWS, REGULATIONS, AND ORDINANCES.

Equal Employment Opportunity (EEO) Requirements
(Required Contract Provision)

The Contractor's EEO Certification Form provided on the following page must be:

- (1) included in the contract documents and
- (2) referenced in the Instructions to Bidders, informing bidders that the form must be completed and submitted with their bid.

NOTE: If the loan applicant has its own EEO requirements, local procedures and forms may be substituted for the EPA form.

Contractor Equal Employment Opportunity Certification

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

1. The undersigned will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The undersigned will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion 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 undersigned agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this equal opportunity (federally assisted construction) clause.
2. The undersigned will, in all solicitations or advertisements for employees placed by or on behalf of the undersigned, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
3. The undersigned 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 advising the said labor union or workers' representative of the undersigned's commitment under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The undersigned will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
5. The undersigned will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and relevant orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records and accounts by the administering agency of the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
6. In the event of the undersigned's non-compliance with the equal opportunity (federally assisted construction) clause of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part, and the undersigned may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rules, regulations, or order of the Secretary of Labor, or as provided by law.
7. The undersigned will include this equal opportunity (federally assisted construction) clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order No. 11246 of September 24, 1965, so that such provision will be binding upon each subcontract or vendor. The undersigned will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for non compliance: Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor, as a result of such direction by the administering agency the undersigned may request the United States to enter into such litigation to protect the interest of the United States.

(Signature)

(Date)

(Name and Title of Signer, Please type)

(Firm Name)

Debarment Requirements

(Required Contract Provision)

The Certification Regarding Debarment, Suspension, and Other Responsibility Matters form included on the following page must be:

- (1) included in the contract documents and
- (2) referenced in the Instructions to Bidders, informing bidders that the form must be completed and submitted with their bid.

Certification Regarding Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- (b) Have not within a three year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (b) of this certification;
- (d) Have not within a three year period preceding this application / proposal had one or more public transactions (Federal, State, or local) terminated for cause or default; and
- (e) Will not utilize a subcontractor or supplier who is unable to certify (a) through (d) above.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to 5 years, or both.

Type Name & Title of Authorized Representative

Signature of Authorized Representative

I am unable to certify to the above statements. My explanation is attached.

Certification Regarding Debarment, Suspension, and Other Responsibility Matters INSTRUCTIONS

Under Executive Order 12549 an individual or organization debarred or excluded from participation in Federal assistance or benefit programs may not receive any assistance award under a Federal program or a subagreement thereunder for \$25,000 or more.

Accordingly, each prospective recipient of an EPA grant, loan, or cooperative agreement and any contract or subagreement participant thereunder must complete the attached certification provide an explanation why they cannot. For further details, see 40 CFR 32.510, Participants' responsibilities, in the attached regulation.

Go to www.epls.gov to access the Excluded Parties List System (EPLS). The EPLS includes information regarding entities debarred, suspended, proposed for debarment, excluded or disqualified under the nonprocurement common rule, or otherwise declared ineligible from receiving Federal contracts, certain subcontracts, and certain Federal assistance and benefits. This information may include names, addresses, DUNS numbers, Social Security Numbers, Employer Identification Numbers or other Taxpayer Identification Numbers, if available and deemed appropriate and permissible to publish by the agency taking the action.

Where To Submit

The prospective EPA grant, loan, or cooperative agreement recipient must return the signed certification or explanation with its application to the appropriate EPA Headquarters, Regional office, or Ohio EPA, as required in the applications.

A prospective prime contractor must submit a complete certification or explanation to the individual or organization awarding the contract.

Each prospective subcontractor must submit a complete certification or explanation to the prime contractor for the project.

Applicants may reproduce these materials as needed and provide them to their prospective prime contractor, who, in turn, may reproduce and provide them to prospective subcontractors.

Additional copies / assistance may be requested from:

Ohio EPA
Division of Environmental and Financial Assistance
P.O. Box 1049
Columbus, Ohio 43216-1049
(614) 644-2798
www.epa.state.oh.us/defa/

Disadvantaged Business Enterprises (DBE) Utilization

(Required Contract Provision)

USEPA has a program to encourage the participation of disadvantaged businesses in the construction activities funded by the Clean Water and Drinking Water SRF's. "DBE" is an all inclusive term that includes Minority Business Enterprises (MBE), Women Business Enterprises (WBE), Small Business Enterprises (SBE), Small Business in Rural Areas (SBRA), HUBZone Small Business, Labor Surplus Area Firms (LSAF), and other entities defined as socially and/or economically disadvantaged. While the WPCLF and WSRLA strongly encourage participation by all disadvantaged groups, specific participation goals are negotiated with USEPA only for Minority Business Enterprises and Women's Business Enterprises.

Goals

As a condition of receiving capitalization grants from U.S. EPA for the Water Pollution Control Loan Fund (WPCLF) and the Water Supply Revolving Loan Account (WSRLA), the Ohio EPA negotiates "fair share" Disadvantaged Business Enterprises (DBE) objectives with U.S. EPA. The current negotiated goals for construction related activities are 3.8% of all contracts to MBE's and 2.8% of all contracts to WBE's.

DBE Certification

Under the DBE program, qualified DBE's are those that have been certified as an MBE or WBE. Certifications can be obtained from a federal agency such as the Small Business Administration or the Department of Transportation or by an approved State agency. The Unified Certification Program (UCP) administered by the Ohio Department of Transportation (ODOT) can provide the necessary DBE certifications. Information on the UCP can be found at www.ohioucp.org as well as the ODOT website www.dot.state.oh.us/divisions/equalopportunity/pages/dbe.aspx. Applications for certification by EPA can be found on EPA's Small Business Programs website at www.epa.gov/osbp under the Disadvantaged Business Enterprise Program link. Any questions regarding EPA's certification process should be directed to Teree Henderson of EPA at 202-566-2222.

DBE Qualifications

To qualify for MBE certification, businesses must be 51 percent owned and controlled by a U.S. citizen and Ohio resident belonging to an African-American, Native American, Hispanic, or Oriental ethnic group. In addition, the business must be in operation for at least one year prior to submitting an application. For DBE status, a business must be at least 51 percent owned by a socially and economically disadvantaged person who participates in the daily operations of the business. This person must be a woman or of African-American, Hispanic, Native American, Asian-Pacific or Asian Subcontinent ethnicity.

Program Requirements

To comply with DBE program requirements the WPCLF/WSRLA loan recipient must do the following:

1. Create and maintain a bidder's list (see description below)

2. Include contract conditions applicable to the DBE program in all procurement contracts entered into by the Borrower for all WPCLF and WSRLA projects. These conditions are listed below.
3. Follow, document, and maintain documentation of good faith efforts on the part of prime contractors to ensure that Disadvantaged Business Enterprises (DBEs) have the opportunity to participate in the project.
4. Review the Form 1A and 1B submittals provided by bidders on the project for completeness and obtain any additional information necessary to verify the certification status of all proposed subcontractors.
5. Obtain documentation of the good faith efforts of the prime contractor if the prime contractor does not meet the MBE or WBE goal.
6. Obtain a written confirmation from any prime contractor states that they will not meet the MBE and WBE goals because they will not be entering into any agreements for goods or services with any company, firm, joint venture, or individual.
7. Submit the following to the Ohio EPA/DEFA as part of the bid package upon which the WPCLF/WSRLA loan amount is determined:
 - Form 1A from each subcontractor
 - Form 1B from each prime contractor
 - a copy of the Good Faith Efforts documentation from any prime contractors that will not meet the MBE and WBE goals,
 - if any of the prime contractors will not meet the MBE and WBE goals because they will not be entering into any agreements for goods or services with any company, firm, joint venture, or individual, a copy of the written confirmation from that prime contractor
8. Report MBE/WBE accomplishments on Form 5700-52A semi-annually (within 15 days after each April 30th and October 30th).

NOTE: It is up to the WPCLF/WSRLA loan recipient whether or not to require completion and submission of Forms 1A and 1B from all bidders with the bid proposal or to accept completion and submission from the successful bidder(s) only at some time after bids are received. Regardless of whether the forms are completed and submitted with the bids or at some later time once the successful bidders are identified, completed forms are to be submitted to Ohio EPA with the bid package.

To comply with DBE program requirements all prime contractors must do the following:

1. Follow, document, and maintain documentation of their good faith efforts.
2. Complete and submit **Form 1B DBE Subcontractor Utilization Summary** as part of the bid proposal package to the loan recipient.
3. Have its Disadvantaged Business Enterprise subcontractors complete **Form 1A Individual DBE Subcontractor Proposed Performance Form** and submit those as part of the bid proposal package to the loan recipient.
4. Provide **Form 2 DBE Subcontractor Actual Participation Form** to all of its Disadvantaged Business Enterprise subcontractors for completion at the end of the work.
5. During construction, provide the data necessary so that the loan recipient can report MBE/WBE accomplishments on Form 5700-52A semi-annually (within 15 days after each April 30th and October 30th).

Bidders List

The Borrower must create, maintain, and use a bidders list for purposes of soliciting both MBE/WBEs and non-MBE/WBEs during procurement of construction, equipment, supplies, and services. This list shall include:

1. Entity's name with point of contact;
2. Entity's mailing address, telephone number, and e-mail address;
3. The procurement on which the entity bid or quoted, and when; and
4. Entity's status as an MBE/WBE or non-MBE/WBE.

Borrowers that receive less than \$250,000 or less in any one fiscal year can be exempt from maintaining a Bidders List.

The Bidders List shall be maintained until the project period has expired and the Borrower is no longer receiving EPA funding. The Bidders List must include all firms that bid on the prime contracts, or bid or gave a quote on subcontracts, including both MBE/WBEs and non-MBE/WBEs.

Required Contract Conditions

The DBE Specification language and instructions to the bidders and Forms 1A, 1B and 2 must be included in the contract documents and referenced in the Instructions to Bidders, informing bidders that the forms must be completed and submitted with their bid for all WPCLF and WSRLA 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 owner.
2. The prime contractor must notify the owner in writing prior to the termination of any Disadvantage Business Enterprise subcontractor for convenience by the prime contractor.
3. If a Disadvantage Business Enterprise contractor fails to complete work under the subcontract for any reason, the prime contractor must employ the six Good Faith Efforts (listed below) if soliciting a replacement contractor.
4. The prime contractor must employ the six Good Faith Efforts even if the prime contractor has achieved its fair share objectives.
5. An owner must ensure that each procurement contract it awards contains the following terms and conditions:

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.

Good Faith Efforts

Borrowers and their prime contractors must follow, document, and maintain documentation of their good faith efforts as listed below to ensure that Disadvantaged Business Enterprises (DBEs) have the opportunity to participate in the project by increasing DBE awareness of procurement efforts and outreach.

1. Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities; including 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 participation by DBEs in the competitive process.
4. Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.
5. Use the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce.
6. If the prime contractor awards subcontracts, require the prime contractor to take the steps in numbers 1 through 5 above.

DBE Forms

Form 1A – Each prime contractor must have its DBE subcontractors complete **Form 1A Individual DBE Subcontractor Proposed Performance Form**. This form gives the DBE subcontractor the opportunity to report the scope and cost of the subcontract it and should be forwarded to the Prime Contractor along with the DBE's quote. Each subcontractor completes one Form 1A. The Borrower must submit all Form 1A forms to the Ohio EPA/DEFA as part of the bid package upon which the WPCLF/WSRLA loan amount is determined.

Form 1B – Each prime contractor must complete and submit **Form 1B DBE Subcontractor Utilization Summary** as part of the prime contractor's bid proposal package to the Borrower. This form summarizes the Prime Contractor's intended use of identified DBE(s) and the estimated dollar amount of each subcontract. Only one Form 1B form is required from each Prime Contractor. The Borrower must submit this form to the Ohio EPA/DEFA as part of the bid package upon which the WPCLF/WSRLA loan amount is determined.

Form 2 - The prime contractor must provide **Form 2 DBE Subcontractor Actual Participation Form** to all of its Disadvantaged Business Enterprise subcontractors.

This form gives the DBE subcontractor the opportunity to describe the work the DBE received from the Prime Contractor, how much the DBE was paid and any other concerns the DBE might have. Disadvantaged Business Enterprise subcontractors must send completed Form 2 directly to the Region 5 DBE Coordinator:

Adrienne M. Callahan, Region 5 MBE/WBE Coordinator
USEPA, Acquisition and Assistance Branch
77 West Jackson Boulevard (MC-10J)
Chicago, IL 60604

This form is completed after the work by the subcontractor is done, and is NOT submitted with the bid package to Ohio EPA.

Reporting During Construction

The purpose of MBE/WBE reporting is to monitor the grant recipient's accomplishments in utilizing MBEs and WBEs; and adherence to the good faith efforts (i.e., outreach to MBEs, WBEs, and other DBEs); and progress in achieving MBE and WBE Goals. During the progress of the construction project, the loan recipient must complete & submit Form 5700-52A semi-annually (within 15 days after each April 30th and October 30th). If there were no MBEs or WBEs utilized, or no procurement expenditures of any kind were made during the reporting period, a "negative report" is still required.

Reports are to be sent to:

Becky McKinney
Ohio EPA – DEFA
P.O. Box 1049
Columbus, OH 43216-1049
E-mail address: defamail@epa.state.oh.us
Fax: (614)644-3687

FORM 1A
Disadvantaged Business Enterprise Program
Individual DBE Subcontractor Proposed Performance Form

NAME OF SUBCONTRACTOR ¹	PROJECT NAME	
ADDRESS	CONTRACT NO.	
TELEPHONE NO.	EMAIL ADDRESS	
PRIME CONTRACTOR NAME		
CONTRACT ITEM NO.	ITEM OF WORK OR DESCRIPTION OF SERVICES BID TO PRIME	PRICE OF WORK SUBMITTED TO PRIME CONTRACTOR
Currently certified as an MBE or WBE under EPA's DBE Program? _____ MBE _____ WBE _____ Neither		
_____ Prime Contractor Signature		_____ Title/Date
_____ Subcontractor Signature		_____ Title/Date

¹ 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.

This form is to be submitted as part of the prime contractor's proposal package.

FORM 1B
Disadvantaged Business Enterprise Program
DBE Subcontractor Utilization Summary

BID/PROPOSAL NO.	PROJECT NAME
NAME OF PRIME BIDDER/PROPOSER	E-MAIL ADDRESS
ADDRESS	
TELEPHONE NO.	FAX NO.

The following subcontractors will be used on this project:			
COMPANY NAME, ADDRESS, PHONE NUMBER, AND E-MAIL ADDRESS	TYPE OF WORK TO BE PERFORMED	ESTIMATED DOLLAR AMOUNT	CURRENTLY CERTIFIED AS AN MBE OR WBE? (specify which)

I certify under penalty of perjury that the forgoing statements are true and correct. 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).

Signature of Prime Contractor	Date
Print Name	Title

1 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.

This form is to be submitted as part of the prime contractor's proposal package.

FORM 2
Disadvantaged Business Enterprise Program
DBE Subcontractor Actual Participation Form

NAME OF SUBCONTRACTOR ¹	PROJECT NAME
ADDRESS	CONTRACT NO.
TELEPHONE NO.	EMAIL ADDRESS
PRIME CONTRACTOR NAME	

Please use the space below to report any concerns regarding the above EPA-funded project (e.g., reason for termination by prime contractor, late payment, etc.).

CONTRACT ITEM NO.	ITEM OF WORK OR DESCRIPTION OF SERVICES RECEIVED FROM THE PRIME CONTRACTOR	ACTUAL AMOUNT SUBCONTRACTOR WAS PAID BY PRIME CONTRACTOR
<div style="display: flex; justify-content: space-between; border-top: 1px solid black;"> Subcontractor Signature _____ Title/Date _____ </div>		

¹ 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.

This form is to be completed and submitted after the work has been completed. Submit completed forms to
 Adrienne M. Callahan, Region 5 MBE/WBE Coordinator
 USEPA, Acquisition and Assistance Branch
 77 West Jackson Boulevard (MC-10J)
 Chicago, IL 60604

**U.S. ENVIRONMENTAL PROTECTION AGENCY
 MBE/WBE UTILIZATION UNDER FEDERAL GRANTS, COOPERATIVE
 AGREEMENTS, AND INTERAGENCY AGREEMENTS**

PART 1. (Reports are required even if no procurements are made during the reporting period.)

1A. FEDERAL FISCAL YEAR 20_____	1B. REPORTING PERIOD (Check ALL appropriate boxes) <input type="checkbox"/> 1 st (Oct-Dec) <input type="checkbox"/> 2 nd (Jan-Mar) <input type="checkbox"/> 3 rd (Apr-Jun) <input type="checkbox"/> 4 th (Jul-Sep) <input type="checkbox"/> Annual <input type="checkbox"/> Check if this is the last report for the project (Project completed).				
1C. REVISION OF A PRIOR REPORT? Y or N Year: _____ Quarter: _____	BRIEFLY DESCRIBE THE REVISIONS YOU ARE MAKING:				
2A. EPA FINANCIAL ASSISTANCE OFFICE ADDRESS (ATTN: DBE Coordinator)		3A. RECIPIENT NAME AND ADDRESS			
2B. EPA DBE COORDINATOR Name: E-mail:	2C. PHONE: Fax:	3B. RECIPIENT REPORTING CONTACT: Name: E-mail:	3C. PHONE: Fax:		
4A. FINANCIAL ASSISTANCE AGREEMENT ID NUMBER (SRF State Recipients, refer to Instructions for Completion of blocks 4A, 5A and 5C.)		4B. FEDERAL FINANCIAL ASSISTANCE PROGRAM TITLE or CFDA NUMBER:			
5A. TOTAL ASSISTANCE AGREEMENT AMOUNT (SRF State Recipients, refer to Instructions for Completion of blocks 4A, 5A and 5C.) EPA Share: \$ _____ Recipient Share: \$ _____		5B. If NO procurement and NO accomplishments were made this reporting period, check and skip to Block No. 7. (<u>Procurements</u> are all expenditures through contract, order, purchase, lease or barter of supplies, equipment, construction, or services needed to complete Federal assistance programs. <u>Accomplishments</u> , in this context, are procurements made with MBEs and/or WBEs.) <input type="checkbox"/>			
5C. Total Procurement and MBE/WBE Accomplishments This Reporting Period (Only include amount not reported in any prior reporting period)					
Were sub-awards issued under this assistance agreement? Yes___ No___ Were contracts issued under this assistance agreement? Yes___ No___					
Total Procurement Amount \$ _____ (Include total dollar values awarded by recipient, sub-recipients and SRF loan recipients.)					
Actual MBE/WBE Procurement Accomplished: (Include total dollar values awarded by recipient, sub-recipients, SRF loan recipients and Prime Contractors.)					
	<u>Construction</u>	<u>Equipment</u>	<u>Services</u>	<u>Supplies</u>	<u>Total</u>
\$MBE:	_____	_____	_____	_____	_____
\$WBE:	_____	_____	_____	_____	_____
6. COMMENTS: (If no MBE/WBE procurements were accomplished during the reporting period, please explain what steps you are taking to achieve the MBE/WBE Program requirements specified in the terms and conditions of the Assistance Agreement.)					
7. NAME OF RECIPIENT'S AUTHORIZED REPRESENTATIVE			TITLE		
8. SIGNATURE OF RECIPIENT'S AUTHORIZED REPRESENTATIVE			DATE		

Part 2 - MBE/WBE PROCUREMENTS MADE DURING REPORTING PERIOD
Ohio EPA Financial Assistance Agreement Number: _____

1. Procurement Made By (check one)			2. Business Enterprise Type (indicate percentage if both)		3. \$ Value of Procurement	4. Date of Award	5. Type of Product or Services (Enter Code)	6. Name/Address/Phone Number of MBE/WBE Contractor or Vendor
Recipient	Sub-Recipient and/or SRF Loan Recipient	Prime	Minority	Women				

Type of product or service codes:

1 = Construction

2 = Supplies

3 = Services

4 = Equipment

Note: Refer to Terms and conditions of your Assistance Agreement to determine the frequency of reporting. Recipients are required to submit MBE/WBE reports to EPA beginning with the Federal fiscal year quarter the recipients receive the award, continuing until the project is completed.

FORM 5700-52A Instructions:

A. General Instructions:

MBE/WBE utilization is based on Executive Orders 11625, 12138, 12432, P.L. 102-389 and EPA Regulations Part 30 and 31. Form 5700-52A must be completed by recipients of Federal grants, cooperative agreements, or other Federal financial assistance which involve procurement of supplies, equipment, construction or services to accomplish Federal assistance programs.

Recipients are required to report 30 days after the end of each federal fiscal quarter or annually, per the terms and conditions of the financial assistance agreement. Submission dates are January 30, April 30, July 30, and October 30. The submission date for annual reports is October 30. MBE/WBE program requirements, including reporting, are material terms and conditions of the financial assistance agreement.

B. Definitions:

Procurement is the acquisition through contract, order, purchase, lease or barter of supplies, equipment, construction or services needed to accomplish Federal assistance programs.

A *contract* is a written agreement between an EPA recipient and another party (also considered "prime contracts") and any lower tier agreement (also considered "subcontracts") for equipment, services, supplies, or construction necessary to complete the project. This definition excludes written agreements with another public agency. This definition includes personal and professional services, agreements with consultants, and purchase orders.

A *minority business enterprise* (MBE) is a business concern that is (1) at least 51 percent owned by one or more minority individuals, or, in the case of a publicly owned business, at least 51 percent of the stock is owned by one or more minority individuals; and (2) whose daily business operations are managed and directed by one or more of the minority owners.

U.S. citizenship is required. Recipients shall presume that minority individuals include Black Americans, Hispanic Americans, Native Americans, Asian Pacific Americans, or other groups whose members are found to be disadvantaged by the Small Business Act or by the Secretary of Commerce under section 5 of Executive order 11625. The reporting contact at EPA can provide additional information.

A *woman business enterprise* (WBE) is a business concern that is, (1) at least 51 percent owned by one

or more women, or, in the case of a publicly owned business, at least 51 percent of the stock is owned by one or more women and (2) whose daily business operations are managed and directed by one or more of the women owners.

Business firms which are 51 percent owned by minorities or women, but are in fact managed and operated by non-minority individuals do not qualify for meeting MBE/WBE procurement goals. U.S. Citizenship is required.

The following affirmative steps for utilizing MBEs and WBEs must be documented. Such documentation is subject to EPA review upon request:

1. Include of MBEs/WBEs on solicitation lists.
2. Assure that MBEs/WBEs are solicited once they are identified.
3. Divide total requirements into smaller tasks to permit maximum MBE/WBE participation, where feasible.
4. Establish delivery schedules which will encourage MBE/WBE participation, where feasible.
5. Encourage use of the services of the U.S. Department of Commerce's Minority Business Development Agency (MBDA) and the U.S. Small Business Administration to identify MBEs/WBEs.
6. Require that each party to a subgrant, subagreement, or contract award take the affirmative steps outlined here.

C. Instructions for Part 1:

1a. Specify Federal fiscal year this report covers. The Federal fiscal year runs from October 1st through September 30th (**e.g. November 29, 2005 falls within Federal fiscal year 2006**)

1b. Check applicable reporting box, quarterly or annually. Also indicate if this is the last report for the project.

1c. Indicate if this is a revision to a previous year or quarter, and provide a brief description of the revision you are making.

2a-c. Please refer to your financial assistance agreement for the mailing address of the EPA financial assistance office for your agreement.

The "EPA DBE Reporting Contact" is the DBE Coordinator for the EPA Region from which your financial assistance agreement was originated. For a list of DBE Coordinators please refer to the EPA OSDDBU website at www.epa.gov/osdbu. Click on "Regional Contacts" for the name of your coordinator.

3a-c. Identify the agency, state authority, university or other organization which is the recipient of the Federal financial assistance and the person to contact concerning this report.

4a. Provide the Assistance Agreement or Interagency Agreement number assigned by EPA. A separate report must be submitted for each Assistance Agreement or Interagency Agreement.

***For SRF recipients:** In box 4a list numbers for ALL open Assistance Agreements. SRF recipients will report activity for all Agreements on one form.

4b. Refer back to Assistance Agreement document for this information.

5a. Provide the total amount of the Assistance Agreement which includes Federal funds plus recipient matching funds and funds from other sources.

***For SRF recipients only:** SRF recipients will not enter an amount in 5a. Please leave 5a blank.

5b. Self-explanatory.

5c. State whether or not sub-awards and/or subcontracts have been issued under the assistance agreement by indicating "yes" or "no".

Provide the total dollar amount of all contracts/procurements awarded this reporting period by the recipient and all sub-recipients, and SRF loan recipients. For example: Actual dollars for procurement from the procuring office; actual contracts let from the contracts office; actual goods, services, supplies, etc., from other sources including the central purchasing/ procurement centers).

Where requested, also provide the total dollar amount of all MBE/WBE procurement awarded during this reporting period by the recipient, sub-recipients, SRF loan recipients, and prime contractors in the categories of construction, equipment, services and supplies. These amounts include the Federal, State and local shares in the procurement awards.

***For SRF recipients only:** In 5c please enter the total procurement amount for the quarter under all of your SRF Assistance Agreements. The figure reported in this section is **not** directly tied to an individual Assistance Agreement identification number. **(SRF state recipients report state procurements in this section)**

6. If there were no MBE/WBE accomplishments this reporting period, please briefly explain what steps you are taking in furtherance of the MBE/WBE requirements specified in the terms and conditions of the Assistance Agreement.

7. Name and title of official administrator or designated reporting official.

8. Signature and month, day year report submitted.

D. Instructions for Part 2:

For each MBE/WBE procurement made under this assistance agreement during the reporting period, provide the following information:

1. Check whether this procurement was made by the recipient, sub-recipient/SRF loan recipient, or the prime contractor.

2. Check either the MBE or WBE column. If a firm is both an MBE and WBE, the recipient may choose to count the entire procurement towards EITHER its MBE or WBE accomplishments. The recipient may also divide the total amount of the procurement (using any ratio it so chooses) and count those divided amounts toward its MBE and WBE accomplishments. If the recipient chooses to divide the procurement amount and count portions toward its MBE and WBE accomplishments, please state the appropriate amounts under the MBE and WBE columns on the form. **The combined MBE and WBE amounts for that MBE/WBE contractor must not exceed the "Value of the Procurement" reported in column #3**

3. Dollar value of procurement.

4. Date of award, shown as month, day, year. Date of award is defined as the date the contract or procurement was awarded, **not** the date the contractor received payment under the awarded contract or procurement, unless payment occurred on the date of award. **(Where direct purchasing is the procurement method, the date of award is the date the purchase was made)**

5. Using codes at the bottom of the form, identify type of product or service acquired through this procurement (eg., enter 1 if construction, 2 if supplies, etc).

6. Name, address, and telephone number of MBE/WBE firm.

**This data is requested to comply with provisions mandated by: statute or regulations (40 CFR Part 30 and 31); OMB Circulars; or added by EPA to ensure sound and effective assistance management. Accurate, complete data are required to obtain funding, while no pledge of confidentiality is provided.

The public reporting and recording burden for this collection of information is estimated to average 1 hour per response annually. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclosure or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and

verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

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, OPPE Regulatory Information Division, U.S. Environmental Protection Agency (2136), 1200 Pennsylvania Avenue, NW, Washington, D.C. 20460. Include the OMB Control number in any correspondence. Do not send the completed form to this address.

Davis-Bacon Wage Rate Requirements

(required contract provision)

Background and Applicability

On October 30, 2009, P.L. 111-88, "Making appropriations for the Department of the Interior, environment, and related agencies for the fiscal year ending September 30, 2010, and for other purposes," was enacted. This law provides appropriations for both the Clean Water State Revolving Fund (CWSRF) and the Drinking Water State Revolving Fund (DWSRF) for Fiscal Year 2010, while adding new requirements to these already existing programs. One new requirement requires the application of Davis-Bacon Act requirements.

Application of the Davis-Bacon Act requirements extend not only to assistance agreements funded with Fiscal Year 2010 appropriations, but to all assistance agreements executed on or after October 30, 2009, whether the source of the funding is prior year's appropriations, state match, bond proceeds, interest earnings, principal repayments, or any other source of funding so long as the project is financed by an SRF assistance agreement. If a project began construction prior to October 30, 2009, but is financed or refinanced through an assistance agreement executed on or after October 30, 2009, Davis-Bacon Act requirements will apply to all construction that occurs on or after October 30, 2009, through completion of construction.

Ohio EPA Responsibilities

With respect to the Water Pollution Control Loan Fund (WPCLF) and Water Supply Revolving Loan Account (WSRLA) revolving funds, EPA provides capitalization grants to each State which in turn provides funding assistance to eligible recipients within the State. Typically, the assistance recipients are municipal or other local governmental entities that manage the funds. Occasionally, the assistance recipients may be a private for profit or not for profit entity. Although EPA and the State are responsible for ensuring assistance recipients incorporate the wage rate requirements set forth herein as part of contracts for WPCLF and WSRLA funding, the assistance recipient has the primary responsibility to maintain payroll records and for compliance with Davis-Bacon Act requirements as described below.

Municipal Or Other Local Governmental Entities Recipient's Responsibilities

The following is intended to help assistance recipients understand and meet their obligations related to Davis-Bacon (DB). Each assistance recipients should, however, review the contract/subcontract requirements that are set forth later in this document for a more full understanding of DB obligations.

Prior to advertising for bids:

- > Obtain the wage determination for the locality in which a covered activity subject to DB will take place from the Department of Labor (DOL) at www.wdol.gov.
- > Incorporate these wage determinations into the request for bids.
- > Include the required contract provisions (see below) into the contract documents.
- > Require prime contracts to include provisions that subcontractors follow the wage determination incorporated into the prime contract.

During the advertisement period:

- > Monitor www.wdol.gov on a weekly basis to ensure that the wage determination contained in the request for bids remains current.
- > If DOL modifies the DB wage determination more than 10 days prior to the bid opening, issue an addendum reflecting the modification.
- > If DOL modifies or supersedes the DB wage determination less than 10 days prior to bid opening and you cannot issue an addendum for the change, you must request a finding from Ohio EPA that there is not reasonable time to notify interested contractors of the modification of the wage determination. The Ohio EPA will give you a report of its findings.

After opening bids:

- > If the contract(s) aren't awarded within 90 days of the bid opening you must monitor www.wdol.gov on a weekly basis to ensure that wage determinations used in the bids remain current.
- > If the contract(s) aren't awarded within 90 days of the bid opening, any modifications or supersedes that DOL makes to the wage determination must be incorporated into the contract unless (1) you request an extension from Ohio EPA AND (2) Ohio EPA obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv).

After contracts are signed and during construction:

- > Review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.
- > DOL may issue a revised wage determination applicable to one or all of your contracts after the award of the contract or execution of the change order which incorporated DB requirements into the contract if DOL determines that you have failed to incorporate a wage determination or have used a wage determination that clearly does not apply to the contract. If this occurs, you shall either terminate the contract or change order and rebid the contract OR incorporate DOL's wage determination retroactive to the beginning of the contract by change order. The contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.
- > Periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. You must use Standard Form 1445 or equivalent documentation to memorialize the interviews.
- > Establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, you must:
 - conduct all interviews in confidence.
 - conduct interviews with a representative group of covered employees within two weeks of each contractor or subcontractor's submission of its initial weekly payroll data and two weeks prior to the estimated completion date for the contract or subcontract.
 - conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB.
 - immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements.
- > Periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. You must:
 - establish and follow a spot check schedule based on your assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract.
 - spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract at a minimum.

- conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB.
- during the examinations, verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

> Periodically review contractors' and subcontractors' use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the DOL or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews.

> Immediately report potential violations of the DB prevailing wage requirements to Andrew Lausted at EPA Region V at 312-886-0189 and to the appropriate DOL Wage and Hour District Office listed at <http://www.dol.gov/esa/contacts/whd/america2.htm>.

If contracts have already been signed and DB requirements need to be incorporated:

> If contracts have already been signed prior to WPCLF/WSRLA funding being provided, you must issue a change order, task order, work assignment or similar legally binding instrument and incorporate the appropriate DOL wage determination from www.wdol.gov as well as the required contract provisions into the contract(s).

> Initiate the contractor and subcontractor review and wage interview requirements as described above and provided in the **Contract And Subcontract Provisions**.

**Private For Profit Or Not For Profit (Non-Governmental) Entities
Recipient's Responsibilities**

The requirements, responsibilities and contract provisions for Private For Profit or Not For Profit Entities (Non-Governmental Entities) is exactly the same as for Municipal Or Other Local Governmental Entities EXCEPT for the following:

Prior to advertising for bids:

> Obtain the proposed wage determinations for specific localities from www.wdol.gov.

> Submit the wage determination to Ohio EPA for approval prior to inserting the wage determination into the solicitation unless subsequently directed otherwise by Ohio EPA.

Contract And Subcontract Provisions For Contracts In Excess Of \$2,000

The following language must be included in full in any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a public building or public work, or building or work financed in whole or in part with WPCLF or WSRLA funds and which is subject to the labor standards provisions of any of the acts listed in §5.1:

NOTE: Modify the first sentence to include the name of the WPCLF/WSRLA funding recipient prior to including these provisions in the contract documents.

Wage Rate Requirements

As used in these provisions "subrecipient" means _____ (fill in WPCLF/WSRLA funding recipient name here).

(a) The following applies to any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a public building or public

work, or building or work financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1.

(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 (a)(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 § 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 paragraph (a)(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.

Subrecipients may obtain wage determinations from the U.S. Department of Labor's web site, www.wdol.gov.

(ii)(A) The subrecipient(s), 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 subrecipient(s) 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 subrecipient(s) 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 subrecipient(s) 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 (a)(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 subrecipient(s), 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 subrecipient, that is, the entity that receives the subgrant 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 subrecipient 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 subrecipient(s) 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 subrecipient(s).

(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;

(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 (a)(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 (a)(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 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, 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 EPA determines may be appropriate, 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.

Contract Provision For Contracts In Excess Of \$100,000 And Subject To The Overtime Provisions Of The Contract Work Hours And Safety Standards Act

The following language must be included in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These provisions are to be included in addition to the provisions for contracts in excess of \$2,000. As used in these paragraphs, the terms laborers and mechanics include watchmen and guards.

(b) Contract Work Hours and Safety Standards Act. The following applies to any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. As used in these paragraphs, 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 he or she is employed on such work to work in excess of forty 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 forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefore 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 paragraph (a)(1) 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 paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient, 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 paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) 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 (b)(1) through (4) of this section.

Contract Provision For Contracts In Excess Of \$100,000 Subject ONLY To The Contract Work Hours And Safety Standards Act

In addition to the provisions for contracts in excess of \$2,000, for 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, you must insert clauses requiring:

(c) The following applies to 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 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 and mechanics, including guards and watchmen, 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.

The records shall be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the Ohio EPA, EPA and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

Violating Facilities Clause
(Required Contract Provision)

Language prohibiting this use of equipment or services from anyone on the EPA List of Violating Facilities must be included in the contract documents.

Violating Facilities:

The Contractor agrees to comply with all applicable standards, orders or requirements under Section 306 of the Clean Air Act, 42 USC 1857 (h), Section 508 of the Clean Water Act, 33 USC 1368, Executive Order 11738, and EPA regulations, 40 CFR Part 32, which prohibits the use under non-exempt Federal contracts, grants, or loans of facilities included on the EPA List of Violating Facilities.

NOTE: THE CONTRACT LANGUAGE SAMPLES PROVIDED HEREIN ARE EXAMPLES OF WHAT COULD BE INCLUDED IN ALL CONTRACTS THAT USE WPCLF OR WSRLA FUNDS. OHIO EPA MAKES NO CLAIMS REGARDING THE LEGALITY OF THESE CLAUSES WITH RESPECT TO STATE OR LOCAL LAW. IT IS IMPERATIVE THAT ANY PARTY INSERTING THESE CLAUSES INTO A CONTRACT VERIFY THAT THEY ARE LEGAL AND ENFORCEABLE ACCORDING TO STATE AND LOCAL LAWS, REGULATIONS, AND ORDINANCES.

Requirement For Utilization Of Small Businesses In Rural Areas (SBRA)

(Required Contract Provision)

The following policy should be added to the “Instructions to Bidders” section and referenced in the Table of Contents for the contract documents:

This procurement is subject to the EPA policy of encouraging the participation of small businesses in rural areas. It is EPA policy that recipients of EPA financial assistance awards utilize the services of small businesses in rural areas (SBRAs), to the maximum extent practicable. The objective is to assure that such small business entities are afforded the maximum practicable opportunity to participate as subcontractors, suppliers and otherwise in EPA-awarded financial assistance programs. This policy applies to all contracts and subcontracts for supplies, construction, and services under EPA grants or cooperative agreements. Small purchases are also subject to this policy.

If possible, also add the following language to the “Advertisement for Bids”:

This procurement is subject to the EPA policy of encouraging the participation of small business in rural areas (SBRAs).

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Insurance Provisions
(Required Contract Provision)

Section 3.5 of the WPCLF Loan Agreement contains specific requirements regarding insurance for all contractors and all subcontractors for the life of the contract. These insurance requirements must be reflected in the contract documents. Adjust the following language as needed to meet the specifics of the construction project and local requirements while still meeting the provisions of the Loan Agreement.

The Contractor shall, at his expense, furnish and maintain insurance in the form and amounts specified in subparagraphs 1 through 7 inclusive, of this section. Policies shall be with acceptable insurance companies authorized to do business in the State of Ohio.

The Contractor shall not commence Work nor shall he permit any of his Sub-contractors to commence Work until the insurance policies specified hereinafter, or otherwise required, have been submitted to, and approved by the Owner. Such insurance policies shall be kept in force until the Contractor receives final payment.

Insurance shall be endorsed so that it cannot be changed or canceled in less than ten (10) days after receipt by the Contractor and the Owner of written notice of such proposed action from the Insurer.

The insurance specified in Subparagraphs 1, 2, 3 and 4 shall be written under the comprehensive general form of liability insurance contracts.

The Contractor shall furnish three (3) certificates or, whenever specifically requested by the Owner, three (3) certified copies of the insurance policies themselves and a receipt evidencing full payment of the premiums.

In addition to the insurance described hereinafter, the Contractor shall secure and maintain such other insurance as may be designated elsewhere in the Contract document.

If the Contractor is required to repair or perform Work after the completion of the Work involved under this Contract or obtain new policies in accordance with the requirements in this section.

1. *Builders Risk*: In addition to such fire and other physical damage insurance as the Contractor elects to carry for his own protection, he shall also secure and maintain in the name of the Owner, the government agency sponsoring the Project, Subcontractors, the Consulting Engineer and any other parties having an interest in the Project, as named insured as their interest may appear; a builders' risk policy for fire, extended coverage, vandalism and malicious mischief in the amount of one hundred (100) percent of the value of the complete parts of the Project and Materials in storage, except that such coverage shall not be required in connection with sewer, water main or paving construction. Pump or lift station construction shall not be considered sewer or water main construction for purposes of this paragraph.

2. *Workers Compensation*: The Contractor shall provide Workers Compensation Insurance for all employees engaged in Work who may come within the protection of the workers compensation law, and, where applicable, employer's General Liability Insurances for employees not so protected and shall require all Subcontractors to provide corresponding insurance.

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The Contractor shall indemnify the Owner and the Consulting Engineer against any and all liabilities, cost and expenses due to accidents or other occurrences covered by the workers compensation law.

3. *Contractor's Motor Vehicle Bodily Injury and Property Damage Liability Insurance*: Insurance to cover liability arising from the use and operation of motor vehicles in connection with the performance of the Contract (as customarily defined in liability insurance policies), whether they be owned, hired or non-owned by the Contractor, as follows:

- a. Bodily Injury Liability: \$500,000 for each person; limit of \$1,000,000 for each occurrence.
- b. Property Damage Liability: \$500,000 for each occurrence.

4. *Contractor's Public Liability and Property Damage Liability Insurance*: Contractor's Public Liability Insurance providing a limit of not less than \$500,000 for all damages arising out of bodily injuries, including accidental death to one person, and a total limit of \$1,000,000 for all damages arising out of bodily injuries, including accidental death, to two or more persons in any one occurrence. Contractor's Property Damage Liability Insurance providing for a limit on not less than \$500,000 for all damages to or destruction of property.

Coverage under this policy shall include, to the limits indicated above, the collapse or damage to any structure, building or its contents, public or private utility, or pavement during construction and for two (2) years thereafter.

Whenever Work under the Contract is to be done in the vicinity of existing underground utilities or structures, coverage under the policy shall also include, to the limits indicated, all damages to said underground utilities or structures during construction and for a period of two (2) years thereafter. Whenever Work under the Contract is to be done by blasting, coverage under the policy shall also include, to the limits indicated above, all damages of any kind whatsoever caused by blasting.

5. *Contractor's Protective Public Liability and Property Damage Liability Insurance*: Contractor's Protective Public Liability and Property Damage Liability Insurance for operations performed by Subcontractors providing for coverage and limits corresponding to those described in subparagraph 4.

6. *Owner's Protective Public Liability and Property Damage Liability Insurance*: Regular Owner's Protective Public Liability and Property Damage Liability Insurance for operations performed by the Contractor or any Sub-contractor providing for coverage and limits corresponding to those described in subparagraph 4.

This policy shall be written in the name of the Owner as a separate policy from those specified elsewhere herein.

7. *Railroad Protective Liability Insurance*: In any of the Work under this Contract is on railroad R/W, the Contractor shall at its sole cost and expense, procure and provide, for and in behalf of each railroad company. Protective Liability Insurance (AARAASHO form) with minimum limits per occurrence of not less than \$2,000,000 for bodily injury, death and/or property damage, subject to an aggregate limit of \$6,000,000 per annum. The policy shall name each railroad company as the insured and be issued to the Contractor. Each railroad company shall be provided with a copy of each policy of insurance prior to commencement of any work.

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Materials Testing
(Required Contract Provision)

In addition to the details included with specific equipment testing in the specifications, include an overall statement regarding testing for the project. Adjust the following language as needed to meet the specifics of the construction project

Testing Services

1. Contractor shall appoint, employ, and pay for specified services of an independent firm to perform testing.
2. The independent firm will perform tests and other services specified in individual specification sections and as required by the Architect/Engineer.
3. Testing and source quality control may occur on or off the project site. Perform offsite testing as required by the Architect/Engineer or the Owner.
4. Reports will be submitted by the independent firm to the Architect/Engineer and Contractor, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
5. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
 - a. Notify Architect/Engineer and independent firm 24 hours prior to expected time for operations requiring services.
 - b. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
6. Testing does not relieve Contractor to perform Work to contract requirements.
7. Re-testing required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Architect/Engineer. Payment for re-testing will be charged to the Contractor by deducting testing charges from the Contract Sum/Price.

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Continuous Treatment Provisions

(Required Contract Provision)

It is important that construction activities not result in any temporary violations of NPDES permit requirements (for permitted facilities) and construction activities should interrupt wastewater service to the individual resident as little as possible.

The following example language is a sample of what might be appropriate for construction work occurring at an existing wastewater treatment plant. The language actually incorporated into the contract documents must be adjusted to meet the specifics of the construction project.

Continuous Treatment

Federal regulations prohibit by-passing of any sewage during construction operations. The Contractor will be responsible for providing any required temporary pumping facilities piping, etc., necessary to complete the project without any plant by-passing and continuous treatment must be provided at the same level during construction as existed prior to construction.

Unless otherwise previously or subsequently specified, the Contractor shall procure and pay for all permits, licenses, and approvals necessary for the execution of his Contract.

The Contractor shall comply with all laws, ordinances, rules, orders, and regulations relating to the performance of the work required to complete his Contract.

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State of Ohio

WATER POLLUTION CONTROL LOAN FUND/WATER SUPPLY REVOLVING LOAN ACCOUNT

CONTRACT CHANGE ORDER

RECIPIENT _____ CHANGE ORDER NBR _____
WPCLF/WSRLA LOAN NBR _____ CONTRACT _____
OWDA PROJECT NBR _____ DATE _____

Description of Change: _____

RECOMMENDED BY: _____ DATE: _____
(Engineer)

APPROVED BY: _____ DATE: _____
(Recipient)

ACCEPTED BY: _____ DATE: _____
(Contractor)

(Contractor Company Name)

Original Contract Amt _____	OWDA APPROVAL The above proposal is hereby accepted and I recommend that it be approved and made a part of the contract covered by OWDA Project Number _____ _____ Chief Engineer
Previous Changes (+ / -) _____	
This Change (+ / -) _____	
Adjusted Contract Amt _____	
OHIO EPA ACCEPTANCE	Date
Ohio EPA ACCEPTANCE _____	Executive Director
DATE _____	Date

CHANGE ORDER INSTRUCTIONS:

All Change Orders for this work, regardless of costs and whether Water Pollution Control Loan Fund (WPCLF) or Water Supply Revolving Loan Account (WSRLA) funding will be used to finance the changes, must be submitted to Ohio EPA for review.

Changes Requiring Prior Approval

Any change which substantially modifies the Project Facilities as specified in the Ohio EPA approved Facilities Plan and Final Permit to Install or Final Plan Approval (when applicable) or alters the direct or indirect impact of the Project Facilities upon the environment must be incorporated into a Change Order. One copy of the Change Order is to be submitted to Ohio EPA – DEFA for review and confirmation of the acceptability of the change. "Prior to execution" means before the change order is signed by the Owner.

Ohio EPA will review the Change Order and inform the Owner of the technical, environmental and operational acceptability of the change, and give the Owner permission to proceed with the proposed work.

All Other Changes

Change orders not requiring prior approval as described above must be submitted to the Ohio EPA – DEFA within one (1) month of the time at which they are approved by the Owner.

Change Order Approval Process

After the change order is executed, a minimum of three copies are to be sent to Ohio EPA - DEFA for final review. All three copies must have original signatures. Only one copy of the supporting documentation for the change is to be submitted.

After the Change Order is accepted and WPCLF eligible costs determined, Ohio EPA will issue a letter informing the Owner and authorizing OWDA to disburse funds from Project Contingency for the work. Ohio EPA - DEFA will retain one copy of the Change Order plus the supporting documentation and send the remaining two copies to the Ohio Water Development Authority (OWDA) for processing.

OWDA will retain one copy of the Change Order and send the remaining copies, signed by both Ohio EPA - DEFA and OWDA, back to the Owner.

Payments for Change Order Work

The Owner is precluded from submitting to the OWDA payment requests for Eligible Project Costs associated with the change orders until such time as the Ohio EPA – DEFA's approval of the change orders has been obtained.

All Change Orders, including Prior Approval requests, should be sent to:

Ohio EPA - Division of Environmental and Financial Assistance
P.O. Box 1049
Columbus, Ohio 43216-1049
(614) 644-2828
www.epa.state.oh.us/defa/

Local Protest Procedure
(suggested contract provision)

Some statement as to when a valid protest must be filed, in what form it must be filed and who it must be filed with should be included. ORC 153.12 has some default procedures for handling WPCLF and disputes. If the owner wants more control than provided in ORC, a procedure needs to be spelled out in the Contract Documents.

The following example language is a sample of language that could be included. Review all local procedures and requirements and adjust the language to meet the specifics of the project.

Protests

A protest based upon an alleged violation of the procurement requirement may be filed against the OWNER's procurement action by a party with an adversely affected direct financial interest. The protest shall be filed with the Mayor. The OWNER shall determine the protest. The OWNER may request additional information or a hearing in order to resolve the protest.

A protest shall be filed as early as possible during the procurement process, but must be received by the OWNER no later than one week after the basis of the protest is known or should have been known, whichever is earlier. If the protest is mailed, the protester bears the risk of nondelivery within the required time period.

A protest must clearly present the procurement requirement being protested, the facts which support the protest, and any other information necessary to support the protest.

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Basis And Method For Award

(suggested contract provision)

The contract documents should include some language that clearly states what the Owner will consider when determining the successful bidder and to provide a clear basis for the Owner when they have a need to reject the low bidder and go with a different bidder.

The following example language is a sample of language that could be included. Review all local procedures and requirements and adjust the language to meet the specifics of the project.

Basis for Award

1. Owner reserves the right to reject any and all Bids, to waive any and all informalities and to negotiate contract terms with the successful Bidder, and the right to disregard all nonconforming, nonresponsive or conditional bids. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.
2. In evaluating Bids, Owners shall consider the qualifications of the Bidder, whether or not the Bids comply with the prescribed requirements and alternates and unit prices if requested in the Bid forms. The Owner intends to accept alternates (if any are accepted) in the order in which they are listed in the Bid Form but Owner may accept them in any order or combination.
3. Owner may consider the qualifications and experience of Subcontractors and other persons and organizations (including those who are to furnish the principle items of material or equipment) proposed for those portions of the work as to which the identity of Subcontractors and other persons and organizations must be submitted as provided in the Supplementary Conditions. Operating costs, maintenance considerations, performance data and guarantees of materials and equipment may also be considered by Owner.
4. Owner may conduct investigations he deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of the Bidders, proposed Subcontractors, and other persons and organizations to do the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.
5. Owner reserves the right to reject the Bid of any Bidder who does not pass investigation of evaluation to Owner's satisfaction. Owner may reject any Proposal where the unit price or individual lump sum prices are unbalanced and/or unfavorable to the Owner's interest.
6. Owner will not make any award or permit any award at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs under Executive Order 12549 "Debarment and Suspension." Each Contractor and supplier (over \$25,000) shall complete the Certification Regarding Debarment, Suspension, and Other Responsibility Matters.
7. If Contract is awarded, it will be awarded to the lowest responsive responsible Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interest of the Project.

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8. If the contract is awarded, Owner will give the Successful Bidder a Notice of Award within the time stated in the Advertisement after the day of the Bid opening.
9. When owner gives a Notice of Award to the Successful Bidder, it will be accompanied by at least three unsigned counterparts of the Agreement and three copies of all other Contract Documents. Within ten days thereafter, Contractor shall sign and deliver at least three counterparts of the Agreement to Owner with three copies of all other Contract Documents attached. Within fifteen days thereafter, Owner will deliver one copy of all fully signed counterparts to Contractor.

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Payment Methods

(suggested contract provision)

To minimize uncertainty and arguments that can slow down the progress of construction it is useful to provide language stating how and when the Contractor will get paid. In addition to ORC and other local requirements, the involvement of public funding Agencies such as the WPCLF, Ohio Public Works Commission and Community Development Block Grant impact the process and timing for payments.

The following example language is a sample of language that could be included. Review all local procedures and requirements and adjust the language to meet the specifics of the project.

1. At least ten (10) days before each progress payment falls due (but not more often than once a month), the Contractor will submit to the Engineer a partial payment estimated filled out and signed by the Contractor covering the work performed during the period covered by the partial payment estimate and supported by such data as the Engineer may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitable stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the Owner as will establish the Owner's title to the material and equipment and protect his interest therein, including applicable insurance. The Engineer will, with ten (10) days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the Owner, or return the partial payment estimate to the Contractor indicating in writing his reason for refusing to approve payment.

In the latter case, the Contractor may make the necessary corrections and resubmit the partial payment estimate. The Owner will, within 30 days of presentation to him of an approved partial payment estimate, pay Contractor for labor performed and material incorporated in the Work, at the rate of 92 percent of the amount of the estimate as approved by the Engineer until 50 percent of the Work is completed. All labor performed and material incorporated in the Work after the job is 50 percent of completed shall be paid for at the rate of 100 percent of the amount of additional labor and material furnished and approved and the amount labor and material furnished and approved the amount previously retained shall be deposited in an escrow account. The funds in the escrow account with accumulated interest are to be paid the Contractor at the same time and in the same manner as specified for payment of the of the retained amount in Section 5.

Payment for material and equipment delivered and not incorporated shall be based on the scheduled of quantities and cost submitted. Any money due from Owner shall, on the day that it is due, be paid to Contractor, or deposited in an escrow account, whichever is applicable, with one or more banks or building and loan associations in the state selected by mutual agreement between the Contractor and the Owner. The agreement shall contain the following provisions:

- A. The money shall be deposited in a savings account or the escrow agent shall properly invest the entire escrow principal in obligations selected by the escrow agent, as stipulated in the agreement.
- B. The escrow agent shall hold the escrow principal and income until receipt of notice from the Owner and the Contractor, or until receipt of an arbitration order specifying the amount of escrow principal to be released and the person to whom it is to be released. Upon receipt of

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the notice or order, the agent shall properly pay such amount of principal and the portion of amount of the escrow income to the person indicated.

- C. The escrow agent shall be compensated for its services as agreed to by the Owner and the Contractor from the income from the escrow account.
2. The request for payment may also include an allowance for the cost of such major material and equipment which are suitably stored either at the site or the near the site.

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WPCLF/WSRLA CONTRACT DOCUMENTS REVIEW

Funding Applicant:	
Project Name:	Project Number:
Date Bid Advertisement will start:	Date Bids will be opened:
Engineer's estimate of construction cost:	
Time of completion for work (e.g., 9 months):	

Please provide the Section/Page number from the contract documents that corresponds with each item below.

Program Requirements - Any item checked as "No" must be explained on a separate sheet

- Yes No Davis-Bacon wage rate requirements Section/Page # _____
- Yes No EEO Certification Section/Page # _____
- Yes No Certification Regarding Debarment & Suspension Section/Page # _____
- Yes No Violating Facilities clause Section/Page # _____
- Yes No Insurance for both the contractor and all subcontractors: Section/Page # _____
 - Yes No Workers' Compensation
 - Yes No Public Liability
 - Yes No Property Damage
 - Yes No Vehicle Liability
 - Yes No Flood (if appropriate)
 - Yes No Builders Risk (can be held by owner instead)
- Yes No Small Business in Rural Areas instructions Section/Page # _____
- Yes No WPCLF/WSRLA Change Order form & instructions Section/Page # _____
- Yes No Contract provisions describing DBE requirements Section/Page # _____
- Yes No DBE Forms 1A, 1B, and 2 Section/Page # _____
- Yes No Project-specific continuous service/treatment provisions Section/Page # _____
- Yes No Bid proposal forms (necessary for determining loan eligibility) Section/Page # _____

Other Contract Requirements

- N/A - superseded by local requirements
- Yes No Text of the bid advertisement Section/Page # _____
- Yes No Engineer's estimate of cost for construction Section/Page # _____
- Yes No Description of how the bid price, including any alternates, is determined Section/Page # _____
- Yes No Notice to Proceed form Section/Page # _____
- Yes No Any material or equipment designated from a "sole source?" Section/Page # _____
If yes, attach a description and justification for each item.
- Yes No Bid includes a dedicated contract contingency/allowance amount Section/Page # _____
Contract contingency is a fixed dollar amount a fixed percentage of the contract total

Ohio Revised Code Requirements - The following are required for municipalities (cities, villages, counties, sewer districts) but may be superseded by local charter or other local requirements.

- N/A - superseded by local requirements N/A - not a municipality
- Yes No Bid Guarantee in the form required by ORC Section/Page # _____
- Yes No Payment and Performance Bonds in the form required by ORC Section/Page # _____
- Yes No Provisions for payment retention in conformance with ORC Section/Page # _____
- Yes No A specific time for completion of the work Section/Page # _____

Checklist Prepared by: _____
revised August 15, 2012

Phone or E-mail

Bid Package Submittals

The following documents must be submitted to Ohio EPA – DEFA within one week after bids are received, or sooner dependent on your individual project schedule.

1. One copy of all addenda when they are issued.
2. A complete copy of the successful bidder's proposal(s).
3. A bid tabulation (a list of all bidders and their line item amounts) in the same format as the proposal.
4. The engineer's bid evaluation and recommendation.
5. A signed copy of the Contractor's EEO Certification Form
6. A signed copy of the Certification Regarding Debarment, Suspension, and Other Responsibility Matters.
7. Completed copies of Form 1A Individual DBE Subcontractor Proposed Performance Form and Form 1B DBE Subcontractor Utilization Summary that were provided by the successful bidder(s), as well as any alternate "good faith efforts" documentation.
8. A resolution from the loan recipient's governing body tentatively awarding the contract to the successful bidder.
9. A copy of the site title opinion stating that all sites, easements and / or right-of-way necessary to construct the project have been acquired.



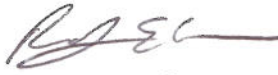
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460


MAR 20 2014

OFFICE OF WATER

MEMORANDUM

SUBJECT: Implementation of American Iron and Steel provisions of P.L. 113-76,
Consolidated Appropriations Act, 2014

FROM: For Andrew D. Sawyers, Director 
Office of Wastewater Management (4201M)

Peter C. Grevatt, Director 
Office of Ground Water and Drinking Water (4601M)

TO: Water Management Division Directors
Regions I - X

P.L. 113-76, Consolidated Appropriations Act, 2014 (Act), includes an “American Iron and Steel (AIS)” requirement in section 436 that requires Clean Water State Revolving Loan Fund (CWSRF) and Drinking Water State Revolving Loan Fund (DWSRF) assistance recipients to use iron and steel products that are produced in the United States for projects for the construction, alteration, maintenance, or repair of a public water system or treatment works if the project is funded through an assistance agreement executed beginning January 17, 2014 (enactment of the Act), through the end of Federal Fiscal Year 2014.

Section 436 also sets forth certain circumstances under which EPA may waive the AIS requirement. Furthermore, the Act specifically exempts projects where engineering plans and specifications were approved by a State agency prior to January 17, 2014.

The approach described below explains how EPA will implement the AIS requirement. The first section is in the form of questions and answers that address the types of projects that must comply with the AIS requirement, the types of products covered by the AIS requirement, and compliance. The second section is a step-by-step process for requesting waivers and the circumstances under which waivers may be granted.

Implementation

The Act states:

Sec. 436. (a)(1) None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products used in the project are produced in the United States.

(2) In this section, the term “iron and steel products” means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.

(b) Subsection (a) shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency (in this section referred to as the “Administrator”) finds that—

(1) applying subsection (a) would be inconsistent with the public interest;

(2) iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or

(3) inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

(c) If the Administrator receives a request for a waiver under this section, the Administrator shall make available to the public on an informal basis a copy of the request and information available to the Administrator concerning the request, and shall allow for informal public input on the request for at least 15 days prior to making a finding based on the request. The Administrator shall make the request and accompanying information available by electronic means, including on the official public Internet Web site of the Environmental Protection Agency.

(d) This section shall be applied in a manner consistent with United States obligations under international agreements.

(e) The Administrator may retain up to 0.25 percent of the funds appropriated in this Act for the Clean and Drinking Water State Revolving Funds for carrying out

the provisions described in subsection (a)(1) for management and oversight of the requirements of this section.

(f) This section does not apply with respect to a project if a State agency approves the engineering plans and specifications for the project, in that agency's capacity to approve such plans and specifications prior to a project requesting bids, prior to the date of the enactment of this Act.

The following questions and answers provide guidance for implementing and complying with the AIS requirements:

Project Coverage

1) What classes of projects are covered by the AIS requirement?

All treatment works projects funded by a CWSRF assistance agreement, and all public water system projects funded by a DWSRF assistance agreement, from the date of enactment through the end of Federal Fiscal Year 2014, are covered. The AIS requirements apply to the entirety of the project, no matter when construction begins or ends. Additionally, the AIS requirements apply to all parts of the project, no matter the source of funding.

2) Does the AIS requirement apply to nonpoint source projects or national estuary projects?

No. Congress did not include an AIS requirement for nonpoint source and national estuary projects unless the project can also be classified as a 'treatment works' as defined by section 212 of the Clean Water Act.

3) Are any projects for the construction, alteration, maintenance, or repair of a public water system or treatment works excluded from the AIS requirement?

Any project, whether a treatment works project or a public water system project, for which engineering plans and specifications were approved by the responsible state agency prior to January 17, 2014, is excluded from the AIS requirements.

4) What if the project does not have approved engineering plans and specifications but has signed an assistance agreement with a CWSRF or DWSRF program prior to January 17, 2014?

The AIS requirements do not apply to any project for which an assistance agreement was signed prior to January 17, 2014.

5) What if the project does not have approved engineering plans and specifications, but bids were advertised prior to January 17, 2014 and an assistance agreement was signed after January 17, 2014?

If the project does not require approved engineering plans and specifications, the bid advertisement date will count in lieu of the approval date for purposes of the exemption in section 436(f).

6) What if the assistance agreement that was signed prior to January 17, 2014, only funded a part of the overall project, where the remainder of the project will be funded later with another SRF loan?

If the original assistance agreement funded any construction of the project, the date of the original assistance agreement counts for purposes of the exemption. If the original assistance agreement was only for planning and design, the date of that assistance agreement will count for purposes of the exemption only if there is a written commitment or expectation on the part of the assistance recipient to fund the remainder of the project with SRF funds.

7) What if the assistance agreement that was signed prior to January 17, 2014, funded the first phase of a multi-phase project, where the remaining phases will be funded by SRF assistance in the future?

In such a case, the phases of the project will be considered a single project if all construction necessary to complete the building or work, regardless of the number of contracts or assistance agreements involved, are closely related in purpose, time and place. However, there are many situations in which major construction activities are clearly undertaken in phases that are distinct in purpose, time, or place. In the case of distinct phases, projects with engineering plans and specifications approval or assistance agreements signed prior to January 17, 2014 would be excluded from AIS requirements while those approved/signed on January 17, 2014, or later would be covered by the AIS requirements.

8) What if a project has split funding from a non-SRF source?

Many States intend to fund projects with “split” funding, from the SRF program and from State or other programs. Based on the Act language in section 436, which requires that American iron and steel products be used in any project for the construction, alteration, maintenance, or repair of a public water system or treatment works receiving SRF funding between and including January 17, 2014 and September 30, 2014, any project that is funded in whole or in part with such funds must comply with the AIS requirement. A “project” consists of all construction necessary to complete the building or work regardless of the number of contracts or assistance agreements involved so long as all contracts and assistance agreements awarded are closely related in purpose, time and place. This precludes the intentional splitting of SRF projects into separate and smaller contracts or assistance agreements to avoid AIS coverage on some portion of a larger

project, particularly where the activities are integrally and proximately related to the whole. However, there are many situations in which major construction activities are clearly undertaken in separate phases that are distinct in purpose, time, or place, in which case, separate contracts or assistance agreement for SRF and State or other funding would carry separate requirements.

9) What about refinancing?

If a project began construction, financed from a non-SRF source, prior to January 17, 2014, but is refinanced through an SRF assistance agreement executed on or after January 17, 2014 and prior to October 1, 2014, AIS requirements will apply to all construction that occurs on or after January 17, 2014, through completion of construction, unless, as is likely, engineering plans and specifications were approved by a responsible state agency prior to January 17, 2014. There is no retroactive application of the AIS requirements where a refinancing occurs for a project that has completed construction prior to January 17, 2014.

10) Do the AIS requirements apply to any other EPA programs, besides the SRF program, such as the Tribal Set-aside grants or grants to the Territories and DC?

No, the AIS requirement only applies to funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12)

Covered Iron and Steel Products

11) What is an iron or steel product?

For purposes of the CWSRF and DWSRF projects that must comply with the AIS requirement, an iron or steel product is one of the following made primarily of iron or steel that is permanently incorporated into the public water system or treatment works:

- Lined or unlined pipes or fittings;
- Manhole Covers;
- Municipal Castings (defined in more detail below);
- Hydrants;
- Tanks;
- Flanges;
- Pipe clamps and restraints;
- Valves;
- Structural steel (defined in more detail below);
- Reinforced precast concrete; and
- Construction materials (defined in more detail below).

12) What does the term ‘primarily iron or steel’ mean?

‘Primarily iron or steel’ places constraints on the list of products above. For one of the listed products to be considered subject to the AIS requirements, it must be made of greater than 50% iron or steel, measured by cost. The cost should be based on the material costs.

13) Can you provide an example of how to perform a cost determination?

For example, the iron portion of a fire hydrant would likely be the bonnet, body and shoe, and the cost then would include the pouring and casting to create those components. The other material costs would include non-iron and steel internal workings of the fire hydrant (i.e., stem, coupling, valve, seals, etc). However, the assembly of the internal workings into the hydrant body would not be included in this cost calculation. If one of the listed products is not made primarily of iron or steel, United States (US) provenance is not required. An exception to this definition is reinforced precast concrete, which is addressed in a later question.

14) If a product is composed of more than 50% iron or steel, but is not listed in the above list of items, must the item be produced in the US? Alternatively, must the iron or steel in such a product be produced in the US?

The answer to both question is no. Only items on the above list must be produced in the US. Additionally, the iron or steel in a non-listed item can be sourced from outside the US.

15) What is the definition of steel?

Steel means an alloy that includes at least 50 percent iron, between .02 and 2 percent carbon, and may include other elements. Metallic elements such as chromium, nickel, molybdenum, manganese, and silicon may be added during the melting of steel for the purpose of enhancing properties such as corrosion resistance, hardness, or strength. The definition of steel covers carbon steel, alloy steel, stainless steel, tool steel and other specialty steels.

16) What does ‘produced in the United States’ mean?

Production in the United States of the iron or steel products used in the project requires that all manufacturing processes, including application of coatings, must take place in the United States, with the exception of metallurgical processes involving refinement of steel additives. All manufacturing processes includes processes such as melting, refining, forming, rolling, drawing, finishing, fabricating and coating. Further, if a domestic iron and steel product is taken out of the US for any part of the manufacturing process, it becomes foreign source material. However, raw materials such as iron ore, limestone and iron and steel scrap are not covered by the AIS requirement, and the

material(s), if any, being applied as a coating are similarly not covered. Non-iron or steel components of an iron and steel product may come from non-US sources. For example, for products such as valves and hydrants, the individual non-iron and steel components do not have to be of domestic origin.

17) Are the raw materials used in the production of iron or steel required to come from US sources?

No. Raw materials, such as iron ore, limestone, scrap iron, and scrap steel, can come from non-US sources.

18) If an above listed item is primarily made of iron or steel, but is only at the construction site temporarily, must such an item be produced in the US?

No. Only the above listed products made primarily of iron or steel, permanently incorporated into the project must be produced in the US. For example trench boxes, scaffolding or equipment, which are removed from the project site upon completion of the project, are not required to be made of U.S. Iron or Steel.

19) What is the definition of ‘municipal castings’?

Municipal castings are cast iron or steel infrastructure products that are melted and cast. They typically provide access, protection, or housing for components incorporated into utility owned drinking water, storm water, wastewater, and surface infrastructure. They are typically made of grey or ductile iron, or steel. Examples of municipal castings are:

- Access Hatches;
- Ballast Screen;
- Benches (Iron or Steel);
- Bollards;
- Cast Bases;
- Cast Iron Hinged Hatches, Square and Rectangular;
- Cast Iron Riser Rings;
- Catch Basin Inlet;
- Cleanout/Monument Boxes;
- Construction Covers and Frames;
- Curb and Corner Guards;
- Curb Openings;
- Detectable Warning Plates;
- Downspout Shoes (Boot, Inlet);
- Drainage Grates, Frames and Curb Inlets;
- Inlets;
- Junction Boxes;
- Lampposts;
- Manhole Covers, Rings and Frames, Risers;

Meter Boxes;
Service Boxes;
Steel Hinged Hatches, Square and Rectangular;
Steel Riser Rings;
Trash receptacles;
Tree Grates;
Tree Guards;
Trench Grates; and
Valve Boxes, Covers and Risers.

20) What is ‘structural steel’?

Structural steel is rolled flanged shapes, having at least one dimension of their cross-section three inches or greater, which are used in the construction of bridges, buildings, ships, railroad rolling stock, and for numerous other constructional purposes. Such shapes are designated as wide-flange shapes, standard I-beams, channels, angles, tees and zees. Other shapes include H-piles, sheet piling, tie plates, cross ties, and those for other special purposes.

21) What is a ‘construction material’ for purposes of the AIS requirement?

Construction materials are those articles, materials, or supplies made primarily of iron and steel, that are permanently incorporated into the project, not including mechanical and/or electrical components, equipment and systems. Some of these products may overlap with what is also considered “structural steel”. This includes, but is not limited to, the following products: wire rod, bar, angles, concrete reinforcing bar, wire, wire cloth, wire rope and cables, tubing, framing, joists, trusses, fasteners (i.e., nuts and bolts), welding rods, decking, grating, railings, stairs, access ramps, fire escapes, ladders, wall panels, dome structures, roofing, ductwork, surface drains, cable hanging systems, manhole steps, fencing and fence tubing, guardrails, doors, and stationary screens.

22) What is not considered a ‘construction material’ for purposes of the AIS requirement?

Mechanical and electrical components, equipment and systems are not considered construction materials. Mechanical equipment is typically that which has motorized parts and/or is powered by a motor. Electrical equipment is typically any machine powered by electricity and includes components that are part of the electrical distribution system.

The following examples (including their appurtenances necessary for their intended use and operation) are NOT considered construction materials: pumps, motors, gear reducers, drives (including variable frequency drives (VFDs)), electric/pneumatic/manual accessories used to operate valves (such as electric valve actuators), mixers, gates, motorized screens (such as traveling screens), blowers/aeration equipment, compressors, meters, sensors, controls and switches, supervisory control and

data acquisition (SCADA), membrane bioreactor systems, membrane filtration systems, filters, clarifiers and clarifier mechanisms, rakes, grinders, disinfection systems, presses (including belt presses), conveyors, cranes, HVAC (excluding ductwork), water heaters, heat exchangers, generators, cabinetry and housings (such as electrical boxes/enclosures), lighting fixtures, electrical conduit, emergency life systems, metal office furniture, shelving, laboratory equipment, analytical instrumentation, and dewatering equipment.

23) If the iron or steel is produced in the US, may other steps in the manufacturing process take place outside of the US, such as assembly?

No. Production in the US of the iron or steel used in a listed product requires that all manufacturing processes must take place in the United States, except metallurgical processes involving refinement of steel additives.

24) What processes must occur in the US to be compliant with the AIS requirement for reinforced precast concrete?

While reinforced precast concrete may not be at least 50% iron or steel, in this particular case, the reinforcing bar and wire must be produced in the US and meet the same standards as for any other iron or steel product. Additionally, the casting of the concrete product must take place in the US. The cement and other raw materials used in concrete production are not required to be of domestic origin.

If the reinforced concrete is cast at the construction site, the reinforcing bar and wire are considered to be a construction material and must be produced in the US.

Compliance

25) How should an assistance recipient document compliance with the AIS requirement?

In order to ensure compliance with the AIS requirement, specific AIS contract language must be included in each contract, starting with the assistance agreement, all the way down to the purchase agreements. Sample language for assistance agreements and contracts can be found in Appendix 3 and 4.

EPA recommends the use of a step certification process, similar to one used by the Federal Highway Administration. The step certification process is a method to ensure that producers adhere to the AIS requirement and assistance recipients can verify that products comply with the AIS requirement. The process also establishes accountability and better enables States to take enforcement actions against violators.

Step certification creates a paper trail which documents the location of the manufacturing process involved with the production of steel and iron materials. A step certification is a process under which each handler (supplier, fabricator, manufacturer,

processor, etc) of the iron and steel products certifies that their step in the process was domestically performed. Each time a step in the manufacturing process takes place, the manufacturer delivers its work along with a certification of its origin. A certification can be quite simple. Typically, it includes the name of the manufacturer, the location of the manufacturing facility where the product or process took place (not its headquarters), a description of the product or item being delivered, and a signature by a manufacturer's responsible party. Attached, as Appendix 5, are sample certifications. These certifications should be collected and maintained by assistance recipients.

Alternatively, the final manufacturer that delivers the iron or steel product to the worksite, vendor, or contractor, may provide a certification asserting that all manufacturing processes occurred in the US. While this type of certification may be acceptable, it may not provide the same degree of assurance. Additional documentation may be needed if the certification is lacking important information. Step certification is the best practice.

26) How should a State ensure assistance recipients are complying with the AIS requirement?

In order to ensure compliance with the AIS requirement, States SRF programs must include specific AIS contract language in the assistance agreement. Sample language for assistance agreements can be found in Appendix 3.

States should also, as a best practice, conduct site visits of projects during construction and review documentation demonstrating proof of compliance which the assistance recipient has gathered.

27) What happens if a State or EPA finds a non-compliant iron and/or steel product permanently incorporated in the project?

If a potentially non-compliant product is identified, the State should notify the assistance recipient of the apparent unauthorized use of the non-domestic component, including a proposed corrective action, and should be given the opportunity to reply. If unauthorized use is confirmed, the State can take one or more of the following actions: request a waiver where appropriate; require the removal of the non-domestic item; or withhold payment for all or part of the project. Only EPA can issue waivers to authorize the use of a non-domestic item. EPA may use remedies available to it under the Clean Water Act, the Safe Drinking Water Act, and 40 CFR part 31 grant regulations, in the event of a violation of a grant term and condition.

It is recommended that the State work collaboratively with EPA to determine the appropriate corrective action, especially in cases where the State is the one who identifies the item in noncompliance or there is a disagreement with the assistance recipient.

If fraud, waste, abuse, or any violation of the law is suspected, the Office of Inspector General (OIG) should be contacted immediately. The OIG can be reached at 1-

888-546-8740 or OIG_Hotline@epa.gov. More information can be found at this website: <http://www.epa.gov/oig/hotline.htm>.

28) How do international trade agreements affect the implementation of the AIS requirements?

The AIS provision applies in a manner consistent with United States obligations under international agreements. Typically, these obligations only apply to direct procurement by the entities that are signatories to such agreements. In general, SRF assistance recipients are not signatories to such agreements, so these agreements have no impact on this AIS provision. In the few instances where such an agreement applies to a municipality, that municipality is under the obligation to determine its applicability and requirements and document the actions taken to comply for the State.

Waiver Process

The statute permits EPA to issue waivers for a case or category of cases where EPA finds (1) that applying these requirements would be inconsistent with the public interest; (2) iron and steel products are not produced in the US in sufficient and reasonably available quantities and of a satisfactory quality; or (3) inclusion of iron and steel products produced in the US will increase the cost of the overall project by more than 25 percent.

In order to implement the AIS requirements, EPA has developed an approach to allow for effective and efficient implementation of the waiver process to allow projects to proceed in a timely manner. The framework described below will allow States, on behalf of the assistance recipients, to apply for waivers of the AIS requirement directly to EPA Headquarters. Only waiver requests received from states will be considered. Pursuant to the Act, EPA has the responsibility to make findings as to the issuance of waivers to the AIS requirements.

Definitions

The following terms are critical to the interpretation and implementation of the AIS requirements and apply to the process described in this memorandum:

Reasonably Available Quantity: The quantity of iron or steel products is available or will be available at the time needed and place needed, and in the proper form or specification as specified in the project plans and design.

Satisfactory Quality: The quality of iron or steel products, as specified in the project plans and designs.

Assistance Recipient: A borrower or grantee that receives funding from a State CWSRF or DWSRF program.

Step-By-Step Waiver Process

Application by Assistance Recipient

Each local entity that receives SRF water infrastructure financial assistance is required by section 436 of the Act to use American made iron and steel products in the construction of its project. However, the recipient may request a waiver. Until a waiver is granted by EPA, the AIS requirement stands, except as noted above with respect to municipalities covered by international agreements.

The waiver process begins with the SRF assistance recipient. In order to fulfill the AIS requirement, the assistance recipient must in good faith design the project (where applicable) and solicit bids for construction with American made iron and steel products. It is essential that the assistance recipient include the AIS terms in any request for proposals or solicitations for bids, and in all contracts (see Appendix 3 for sample construction contract language). The assistance recipient may receive a waiver at any point before, during, or after the bid process, if one or more of three conditions is met:

1. Applying the American Iron and Steel requirements of the Act would be inconsistent with the public interest;
2. Iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or
3. Inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

Proper and sufficient documentation must be provided by the assistance recipient. A checklist detailing the types of information required for a waiver to be processed is attached as Appendix 1.

Additionally, it is strongly encouraged that assistance recipients hold pre-bid conferences with potential bidders. A pre-bid conference can help to identify iron and steel products needed to complete the project as described in the plans and specifications that may not be available from domestic sources. It may also identify the need to seek a waiver prior to bid, and can help inform the recipient on compliance options.

In order to apply for a project waiver, the assistance recipient should email the request in the form of a Word document (.doc) to the State SRF program. It is strongly recommended that the State designate a single person for all AIS communications. The State SRF designee will review the application for the waiver and determine whether the necessary information has been included. Once the waiver application is complete, the State designee will forward the application to either of two email addresses. For CWSRF waiver requests, please send the application to: cwsrfwaiver@epa.gov. For DWSRF waiver requests, please send the application to: dwsrfwaiver@epa.gov.

Evaluation by EPA

After receiving an application for waiver of the AIS requirements, EPA Headquarters will publish the request on its website for 15 days and receive informal comment. EPA Headquarters will then use the checklist in Appendix 2 to determine whether the application properly and adequately documents and justifies the statutory basis cited for the waiver – that it is quantitatively and qualitatively sufficient – and to determine whether or not to grant the waiver.

In the event that EPA finds that adequate documentation and justification has been submitted, the Administrator may grant a waiver to the assistance recipient. EPA will notify the State designee that a waiver request has been approved or denied as soon as such a decision has been made. Granting such a waiver is a three-step process:

1. Posting – After receiving an application for a waiver, EPA is required to publish the application and all material submitted with the application on EPA’s website for 15 days. During that period, the public will have the opportunity to review the request and provide informal comment to EPA. The website can be found at: http://water.epa.gov/grants_funding/aisrequirement.cfm
2. Evaluation – After receiving an application for waiver of the AIS requirements, EPA Headquarters will use the checklist in Appendix 2 to determine whether the application properly and adequately documents and justifies the statutory basis cited for the waiver – that it is quantitatively and qualitatively sufficient – and to determine whether or not to grant the waiver.
3. Signature of waiver approval by the Administrator or another agency official with delegated authority – As soon as the waiver is signed and dated, EPA will notify the State SRF program, and post the signed waiver on our website. The assistance recipient should keep a copy of the signed waiver in its project files.

Public Interest Waivers

EPA has the authority to issue public interest waivers. Evaluation of a public interest waiver request may be more complicated than that of other waiver requests so they may take more time than other waiver requests for a decision to be made. An example of a public interest waiver that might be issued could be for a community that has standardized on a particular type or manufacturer of a valve because of its performance to meet their specifications. Switching to an alternative valve may require staff to be trained on the new equipment and additional spare parts would need to be purchased and stocked, existing valves may need to be unnecessarily replaced, and portions of the system may need to be redesigned. Therefore, requiring the community to install an alternative valve would be inconsistent with public interest.

EPA also has the authority to issue a public interest waiver that covers categories of products that might apply to all projects.

EPA reserves the right to issue national waivers that may apply to particular classes of assistance recipients, particular classes of projects, or particular categories of iron or steel products. EPA may develop national or (US geographic) regional categorical waivers through the identification of similar circumstances in the detailed justifications presented to EPA in a waiver request or requests. EPA may issue a national waiver based on policy decisions regarding the public's interest or a determination that a particular item is not produced domestically in reasonably available quantities or of a sufficient quality. In such cases, EPA may determine it is necessary to issue a national waiver.

If you have any questions concerning the contents of this memorandum, you may contact us, or have your staff contact Jordan Dorfman, Attorney-Advisor, State Revolving Fund Branch, Municipal Support Division, at dorfman.jordan@epa.gov or (202) 564-0614 or Kiri Anderer, Environmental Engineer, Infrastructure Branch, Drinking Water Protection Division, at anderer.kirsten@epa.gov or (202) 564-3134.

Attachments

Appendix 1: Information Checklist for Waiver Request

The purpose of this checklist is to help ensure that all appropriate and necessary information is submitted to EPA. EPA recommends that States review this checklist carefully and provide all appropriate information to EPA. This checklist is for informational purposes only and does not need to be included as part of a waiver application.

Items	✓	Notes
<p>General</p> <ul style="list-style-type: none"> • Waiver request includes the following information: <ul style="list-style-type: none"> — Description of the foreign and domestic construction materials — Unit of measure — Quantity — Price — Time of delivery or availability — Location of the construction project — Name and address of the proposed supplier — A detailed justification for the use of foreign construction materials • Waiver request was submitted according to the instructions in the memorandum • Assistance recipient made a good faith effort to solicit bids for domestic iron and steel products, as demonstrated by language in requests for proposals, contracts, and communications with the prime contractor 		
<p>Cost Waiver Requests</p> <ul style="list-style-type: none"> • Waiver request includes the following information: <ul style="list-style-type: none"> — Comparison of overall cost of project with domestic iron and steel products to overall cost of project with foreign iron and steel products — Relevant excerpts from the bid documents used by the contractors to complete the comparison — Supporting documentation indicating that the contractor made a reasonable survey of the market, such as a description of the process for identifying suppliers and a list of contacted suppliers 		
<p>Availability Waiver Requests</p> <ul style="list-style-type: none"> • Waiver request includes the following supporting documentation necessary to demonstrate the availability, quantity, and/or quality of the materials for which the waiver is requested: <ul style="list-style-type: none"> — Supplier information or pricing information from a reasonable number of domestic suppliers indicating availability/delivery date for construction materials — Documentation of the assistance recipient's efforts to find available domestic sources, such as a description of the process for identifying suppliers and a list of contacted suppliers. — Project schedule — Relevant excerpts from project plans, specifications, and permits indicating the required quantity and quality of construction materials • Waiver request includes a statement from the prime contractor and/or supplier confirming the non-availability of the domestic construction materials for which the waiver is sought • Has the State received other waiver requests for the materials described in this waiver request, for comparable projects? 		

Appendix 2: HQ Review Checklist for Waiver Request

Instructions: To be completed by EPA. Review all waiver requests using the questions in the checklist, and mark the appropriate box as Yes, No or N/A. Marks that fall inside the shaded boxes may be grounds for denying the waiver. If none of your review markings fall into a shaded box, the waiver is eligible for approval if it indicates that one or more of the following conditions applies to the domestic product for which the waiver is sought:

1. The iron and/or steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality.
2. The inclusion of iron and/or steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

Review Items	Yes	No	N/A	Comments
Cost Waiver Requests <ul style="list-style-type: none"> • Does the waiver request include the following information? <ul style="list-style-type: none"> — Comparison of overall cost of project with domestic iron and steel products to overall cost of project with foreign iron and steel products — Relevant excerpts from the bid documents used by the contractors to complete the comparison — A sufficient number of bid documents or pricing information from domestic sources to constitute a reasonable survey of the market • Does the Total Domestic Project exceed the Total Foreign Project Cost by more than 25%? 				
Availability Waiver Requests <ul style="list-style-type: none"> • Does the waiver request include supporting documentation sufficient to show the availability, quantity, and/or quality of the iron and/or steel product for which the waiver is requested? <ul style="list-style-type: none"> — Supplier information or other documentation indicating availability/delivery date for materials — Project schedule — Relevant excerpts from project plans, specifications, and permits indicating the required quantity and quality of materials • Does supporting documentation provide sufficient evidence that the contractors made a reasonable effort to locate domestic suppliers of materials, such as a description of the process for identifying suppliers and a list of contacted suppliers? • Based on the materials delivery/availability date indicated in the supporting documentation, will the materials be unavailable when they are needed according to the project schedule? (By item, list schedule date and domestic delivery quote date or other relevant information) • Is EPA aware of any other evidence indicating the non-availability of the materials for which the waiver is requested? Examples include: <ul style="list-style-type: none"> — Multiple waiver requests for the materials described in this waiver request, for comparable projects in the same State — Multiple waiver requests for the materials described in this waiver request, for comparable projects in other States — Correspondence with construction trade associations indicating the non-availability of the materials • Are the available domestic materials indicated in the bid documents of inadequate quality compared those required by the project plans, specifications, and/or permits? 				

Appendix 3: Example Loan Agreement Language

ALL ASSISTANCE AGREEMENT MUST HAVE A CLAUSE REQUIRING COMPLIANCE WITH THE AIS REQUIREMENT. THIS IS AN EXAMPLE OF WHAT COULD BE INCLUDED IN SRF ASSISTANCE AGREEMENTS. EPA MAKES NO CLAIMS REGARDING THE LEGALITY OF THIS CLAUSE WITH RESPECT TO STATE LAW:

Comply with all federal requirements applicable to the Loan (including those imposed by the 2014 Appropriations Act and related SRF Policy Guidelines) which the Participant understands includes, among other, requirements that all of the iron and steel products used in the Project are to be produced in the United States (“American Iron and Steel Requirement”) unless (i) the Participant has requested and obtained a waiver from the Agency pertaining to the Project or (ii) the Finance Authority has otherwise advised the Participant in writing that the American Iron and Steel Requirement is not applicable to the Project.

Comply with all record keeping and reporting requirements under the Clean Water Act/Safe Drinking Water Act, including any reports required by a Federal agency or the Finance Authority such as performance indicators of program deliverables, information on costs and project progress. The Participant understands that (i) each contract and subcontract related to the Project is subject to audit by appropriate federal and state entities and (ii) failure to comply with the Clean Water Act/Safe Drinking Water Act and this Agreement may be a default hereunder that results in a repayment of the Loan in advance of the maturity of the Bonds and/or other remedial actions.

Appendix 4: Sample Construction Contract Language

ALL CONTRACTS MUST HAVE A CLAUSE REQUIRING COMPLIANCE WITH THE AIS REQUIREMENT. THIS IS AN EXAMPLE OF WHAT COULD BE INCLUDED IN ALL CONTRACTS IN PROJECTS THAT USE SRF FUNDS. EPA MAKES NO CLAIMS REGARDING THE LEGALITY OF THIS CLAUSE WITH RESPECT TO STATE OR LOCAL LAW:

The Contractor acknowledges to and for the benefit of the City of _____ (“Purchaser”) and the _____ (the “State”) that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund that have statutory requirements commonly known as “American Iron and Steel;” that requires all of the iron and steel products used in the project to be produced in the United States (“American Iron and Steel Requirement”) 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 Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney’s fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State 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 State.

Appendix 5: Sample Certifications

The following information is provided as a sample letter of **step** certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: American Iron and Steel Step Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. XXXX
2. XXXX
3. XXXX

Such process took place at the following location:

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

The following information is provided as a sample letter of certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: American Iron and Steel Certification for Project (XXXXXXXXXXXX)

I, (company representative), certify that the following products and/or materials shipped/provided to the subject project are in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. XXXX
2. XXXX
3. XXXX

Such process took place at the following location:

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

American Iron & Steel Sign-off Form

The Contractor acknowledges to and for the benefit of the Village of Ashville, Ohio ("Purchaser") and the State of Ohio (the "State") that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") 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 Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State 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 State.

Signature

Date

Name and Title of Authorized Signatory, Please Print or Type

Bidder's Firm

Check here if the WPCLF applicant will be requesting a waiver for non-American made iron and steel products.

Ohio Water Pollution Control Loan Fund

Use of American Iron and Steel - De Minimis Final Utilization and Certification Form

The Consolidated Appropriations Act of 2014 (P.L. 113-76) Section 436 requires the use of American & Steel in SRF-funded projects. Under the authority of Section 436(b)(1), the EPA has issued a public interest waiver for De Minimis incidental components. The assistance recipient wishing to use this waiver should consult with their contractor(s) to maintain an itemized list of components covered under De Minimis. At the conclusion of the project, this form must be completed and retained in the assistance recipient's project files and a copy provided to DEFA. Please print clearly or type.

Project Name: _____ Loan Agrmt #: _____

NOTE: The De Minimis waiver is only applicable to the cost of materials for the entire project. Do not include other project costs (labor, installation costs, etc.) in the "Total Cost of Materials". The cost of a material must include delivery to the site and any applicable tax. Must have sufficient documentation to support all costs included in this calculation.

Funds used for de minimis incidental components cumulatively may comprise no more than a total of 5 percent of the total cost of the materials used in and incorporated into a project; the cost of an individual item may not exceed 1 percent of the total cost of the materials used in and incorporated into a project.

Total Cost of Materials: 5% Limit: 1% limit:

Manufacturer & Component Description	Part/Model #	Quantity <small>(if applicable)</small>	Cost per Unit <small>(if applicable)</small>	Component's Total Cost	How is Cost Documented?*

Use additional sheets as necessary

Total De Minimis Cost of Components:

If approaching the 5% or 1% limits, contact DEFA immediately

* Documentation must demonstrate confirmation of the components' actual costs (invoice, etc.).

Completed by:

Name: _____ Title: _____

Signature: _____ Date: _____

SECTION 00 4519

NON-COLLUSION AFFIDAVIT

(This Affidavit is part of the Proposal)

STATE OF _____

COUNTY OF _____

_____ being first duly sworn, deposes and says that he is

(President, Secretary, etc.)

of the party who made the foregoing proposal, that such proposal was genuine and not collusive, that said Bidder did not collude, conspire, connive, or agree, directly or indirectly, with any bidder or person, that such other person should refrain from bidding, or submit a sham bid and did not, in any manner, directly or indirectly, seek by agreement or collusion, or communication or conference with any person, to fix the bid price of Affiant or any other bidder, or to fix any overhead, profit or cost element of said bid price, or of that of any other bidder, or to secure any advantage against Village of Ashville, Ohio, or any person interested in the proposed contract, and that all statements contained in said Proposal are true and further, that such Bidder did not, directly or indirectly, submit this Proposal, or the contents thereof, or divulge information or data relative thereto, to any association or to any member or agent thereof.

AFFIANT

Sworn to and subscribed before me this _____ day of _____, 20 ____

NOTARY PUBLIC IN AND FOR

_____ County, _____

My Commission expires _____, _____, 20____

(SEAL)

END OF SECTION 00 4519

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SECTION 00 4529

PERSONAL PROPERTY TAX DISCLOSURE AFFIDAVIT

STATE OF _____

COUNTY OF _____

I, _____, _____,
(Name) (Office or Title)
of the _____,
(Company Name)

first being duly sworn, do depose and state that it has submitted a competitive Bid for a Contract to be administered and awarded by _____, Ohio.

Furthermore, affiant says that it was not charged with any delinquent personal property taxes, penalties or interest due or owing to the County of [_____], State of Ohio, except as herein stated:

(If none, so state. If due, state amount due together with assisted interest and penalty)

Further, affiant says that a copy of this statement, affirmed under oath, shall be made a part of its Bid and the Contract to be awarded.

Furthermore, affiant sayeth not.

Signed: _____
Corporation or Business

Title: _____

Subscribed and sworn before me, a Notary Public, this ____ day of _____, 20____

Notary Public in and for

_____ County,

My Commission expires _____ 20__ (SEAL)

END OF SECTION 00 4529

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SECTION 00 5100

NOTICE OF AWARD

Date: _____

Project: Village of Ashville, Ohio Sanitary Sewer Improvements 2016 (Part B)	
Owner: Village of Ashville, Ohio	Owner's Contract No.:
Contract:	Engineer's Project No.: 60440011
Bidder:	
Bidder's Address:	

You are notified that your Bid dated _____, for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for _____

The project consists of a new water resource recovery facility consisting of the following: influent pump station; headworks building complete with screening and grit removal; oxidation ditch splitter box; oxidation ditch; two circular clarifiers; scum pump station; UV disinfection; post aeration; aerobic digestion; sludge dewatering/blower building complete with a sludge press, blowers, and electrical equipment; administration building; and all associated site civil, structural, electrical, instrumentation, HVAC, and plumbing work. The project also includes the demolition of the existing plant and replacement with a pump station/forcemain. A new gravity outfall sewer will be constructed from the site of the new WRRF to the existing wastewater treatment plant outfall.

The Contract Price of your Contract is _____
_____ (\$_____).

3 copies of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

5 sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner 3 fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security as specified in the Instructions to Bidders (Article 20), General Conditions (Paragraph 5.01), and Supplementary Conditions (Paragraph SC-5.01).

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

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

Owner

By: _____
Authorized Signature

Title

Copy to Engineer

SECTION 00 5213

AGREEMENT BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT

THIS AGREEMENT is by and between _____ (“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:

All General, Process, Architectural, Structural, Mechanical, and Electrical Work indicated by the Contract Documents necessary for a fully functional system.

ARTICLE 2 – THE PROJECT

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

The project consists of a 24-inch gravity outfall sewer and a 10-inch forcemain. The outfall sewer will be constructed from the site of a new WRRF to the Village’s existing wastewater treatment plant outfall. The forcemain will be constructed from a pump station at the Village’s existing wastewater treatment plant to the new WRRF. Also included are 18-inch and 24-inch gravity influent sewers, storm sewer relocation, and all associated improvements as shown on the plans and specified in the bid documents.

ARTICLE 3 – ENGINEER

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

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

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

4.02 *Days to Achieve Substantial Completion and Final Payment*

- A. The Work will be substantially completed within 305 days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 365 days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner **\$1,000** for each day that expires after the time specified in Paragraph 4.02 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner **\$1,000** for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 – CONTRACT PRICE

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

- A. For all Work other than Unit Price Work including alternates, a lump sum of: \$_____.

All specific cash allowances are included in the above price in accordance with Paragraph 11.02 of the General Conditions.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the last day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be

measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.
 - a. 92 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
 - b. 92 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less 100 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

6.03 *Final Payment*

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

ARTICLE 7 – INTEREST

- 7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at current market rate percent per annum, only if placed in an escrow account after 50% completion at request of Contractor.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:
 - A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
 - B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

- C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Paragraph SC-4.06 of the Supplementary Conditions as containing reliable "technical data."
- E. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement.
 - 2. Bid Guaranty and Contract Bond.
 - 3. General Conditions.

4. Supplementary Conditions.
5. Specification Divisions 00 thru Division 46, as listed in the table of contents of the Project Manual.
6. Drawings consisting of the Drawings listed on sheet index.
7. Addenda.
8. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid.
 - b. Documentation submitted by Contractor prior to Notice of Award.
9. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Engineering Notification Memo.
 - e. Field Order.
 - f. Request for Information.
 - g. Request for Proposal.
 - h. Other written communications.
- B. The documents listed in Paragraph 9.01.A are incorporated into this Agreement by reference.
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 Terms

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

10.02 Assignment of Contract

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may

not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

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

10.04 *Severability*

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

10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Other Provisions*

REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK.

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

This Agreement will be effective on _____

OWNER:

CONTRACTOR

By: _____

By: _____

Title: _____

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:

License No.: _____

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

(Where applicable)

Agent for service of process:

END OF SECTION 00 5213

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SECTION 00 5500
NOTICE TO PROCEED

Date: _____

Project: Village of Ashville, Ohio Sanitary Sewer Improvements 2016 (Part B)

Owner: Village of Ashville, Ohio

Owner's Contract No.:

Contract:

Engineer's Project No.: 60440011

Contractor:

Contractor's Address:

You are notified that the Contract Times under the above Contract will commence to run on_____. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the number of days to achieve Substantial Completion is 730, and the number of days to achieve readiness for final payment is 820.

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds and loss payees) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

_____	_____
_____	Owner
_____	Given by: _____
_____	Authorized Signature
_____	_____
_____	Title
_____	_____
_____	Date

Copy to Engineer

END OF SECTION 00 5500

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SECTION 00 6113.13

PERFORMANCE 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*):

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 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

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

Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

1. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 2.1.
2. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
 - 2.1 Owner has notified Contractor and Surety, at the addresses described in Paragraph 9 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
 - 2.2 Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 2.1; and
 - 2.3 Owner has agreed to pay the Balance of the Contract Price to:
 1. Surety in accordance with the terms of the Contract; or
 2. Another contractor selected pursuant to Paragraph 3.3 to perform the Contract.
3. When Owner has satisfied the conditions of Paragraph 2, Surety shall promptly, and at Surety's expense, take one of the following actions:
 - 3.1 Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
 - 3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
 - 3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 5 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
 - 3.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
 1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
 2. Deny liability in whole or in part and notify Owner citing reasons therefor.
4. If Surety does not proceed as provided in Paragraph 3 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 3.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.

5. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 3.1, 3.2, or 3.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

- 5.1 The responsibilities of Contractor for correction of defective Work and completion of the Contract;
- 5.2 Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions of or failure to act of Surety under Paragraph 3; and
- 5.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

6. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the 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 Owner or its heirs, executors, administrators, or successors.

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

8. 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 Contractor Default or within two years after Contractor ceased working or within two years after 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 period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

9. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

10. 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.

11. Definitions.

- 11.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
- 11.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 11.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
- 11.4 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 party)*:

END OF SECTION 00 6113.13

SECTION 00 6113.16

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*):

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

(Seal)
Contractor's Name and Corporate Seal

(Seal)
Surety's Name and Corporate 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. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
 - 6.1 Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 6.2 Pay or arrange for payment of any undisputed amounts.
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.

END OF SECTION 00 6113.16

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SECTION 00 7000
GENERAL CONDITIONS

Following is Standard General Conditions of the Construction Contract (NSPE – EJCDC C-700, 2007 Edition)

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**Engineers Joint Documents Committee
Design and Construction Related Documents
Instructions and License Agreement**

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You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement. Any attempt otherwise to sublicense, assign, or transfer any of the rights, duties, or obligations hereunder is void.

This Agreement shall be governed by the laws of the State of Virginia. Should you have any questions concerning this Agreement, you may contact EJCDC by writing to:

Arthur Schwartz, Esq.

General Counsel
National Society of Professional Engineers
1420 King Street
Alexandria, VA 22314

Phone: (703) 684-2845
Fax: (703) 836-4875
e-mail: aschwartz@nspe.org

You acknowledge that you have read this agreement, understand it and agree to be bound by its terms and conditions. You further agree that it is the complete and exclusive statement of the agreement between us which supersedes any proposal or prior agreement, oral or written, and any other communications between us relating to the subject matter of this agreement.

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

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by



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CONSTRUCTION SPECIFICATIONS INSTITUTE

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

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

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

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

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

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

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

1.02 Terminology

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

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

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

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

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

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 Delivery of Bonds and Evidence of Insurance

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

2.02 Copies of Documents

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

2.03 Commencement of Contract Times; Notice to Proceed

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

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of

the Work, nor interfere with or relieve Contractor from Contractor's full responsibility 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 component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

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

3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

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

3.04 *Amending and Supplementing Contract Documents*

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

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

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

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the

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

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

4.02 *Subsurface and Physical Conditions*

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

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

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

- 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
- 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

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

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

3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

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

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other

professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

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

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

B. *Not Shown or Indicated:*

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

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

4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by

Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

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

ARTICLE 5 – BONDS AND INSURANCE

5.01 Performance, Payment, and Other Bonds

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

5.02 Licensed Sureties and Insurers

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

5.03 Certificates of Insurance

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

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

5.04 *Contractor's Insurance*

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

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

5.05 *Owner's Liability Insurance*

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

5.06 *Property Insurance*

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

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

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

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

5.07 *Waiver of Rights*

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

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

5.08 *Receipt and Application of Insurance Proceeds*

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

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

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

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

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

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

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

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

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

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

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

2. *Substitute Items:*

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

- 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

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

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

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

6.07 *Patent Fees and Royalties*

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

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all

court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

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

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor

shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

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

6.12 *Record Documents*

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

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
1. all persons on the Site or who may be affected by the Work;
 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

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

6.17 *Shop Drawings and Samples*

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

1. *Shop Drawings:*
 - a. Submit number of copies specified in the General Requirements.
 - b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.
 2. *Samples:*
 - a. Submit number of Samples specified in the Specifications.
 - b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Submittal Procedures:*
1. Before submitting each Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
 2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
 3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop

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

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

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

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

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

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor,

Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

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

6.21 *Delegation of Professional Design Services*

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

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
1. written notice thereof will be given to Contractor prior to starting any such other work; and
 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

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

7.03 *Legal Relationships*

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

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

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

8.03 *Furnish Data*

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

8.04 *Pay When Due*

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

8.05 *Lands and Easements; Reports and Tests*

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

8.06 *Insurance*

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

8.07 *Change Orders*

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

8.08 *Inspections, Tests, and Approvals*

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

8.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

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

8.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

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

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

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

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits

and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

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

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

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

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

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

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

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

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

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

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

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

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

10.04 *Notification to Surety*

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

10.05 *Claims*

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

opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

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

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

11.01 Cost of the Work

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

Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

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

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances:*

1. Contractor agrees that:

- a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
- b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

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

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

12.01 Change of Contract Price

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

- c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
- d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
- e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

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

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the

control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

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

13.01 Notice of Defects

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

13.02 Access to Work

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

13.03 Tests and Inspections

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.

- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

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

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. repair such defective land or areas; or
 - 2. correct such defective Work; or
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute

resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and

equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Schedule of Values

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

14.02 Progress Payments

A. Applications for Payments:

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the

Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or

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

C. Payment Becomes Due:

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

D. Reduction in Payment:

- 1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or

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

14.03 *Contractor's Warranty of Title*

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

14.04 *Substantial Completion*

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

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

- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

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

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

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

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

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

14.08 *Final Completion Delayed*

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

14.09 *Waiver of Claims*

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

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

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

15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 Methods and Procedures

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

ARTICLE 17 – MISCELLANEOUS

17.01 Giving Notice

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

17.02 Computation of Times

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

17.03 *Cumulative Remedies*

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

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

SECTION 00 7300

SUPPLEMENTARY CONDITIONS

PART 1 GENERAL

1.1 GENERAL

- A. These Supplementary Conditions shall modify and supplement the Standard General Conditions of the Construction Contract (Section 00 7000 - EJCDC C-700 2007 Edition), and shall govern whenever they conflict. All provisions which are not so amended or supplemented remain in full force and effect. The Standard General Conditions of the Construction Contract are reproduced herein with no changes.

1.2 MODIFICATIONS TO ARTICLES OF THE GENERAL CONDITIONS

A. ARTICLE 1 – DEFINITIONS

1. Paragraph 1.01.A.19 is supplemented with the following: Where the term "Engineer" is used in the Specification for the approval of materials or work, it shall be understood to mean URS.
2. Paragraph 1.01.A.29 is supplemented with the following: Whenever the term "Owner" is used in the Contract Documents, it shall refer to the Village of Ashville, Ohio, or its authorized representative.

B. ARTICLE 2 – PRELIMINARY MATTERS

1. Paragraph 2.02 – Copies of Documents, will be as stated in Division 01 Section “Summary of Work”.
2. Paragraph 2.03 – Commencement of Contract Time: Notice to Proceed is amended as follows:
Delete the last sentence.

C. ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

1. Paragraph 3.03.A.1 – Add the following after the last sentence:
“By executing the contract, the Contractor also represents and affirms that the Contractor is familiar with federal, state, and local laws, ordinances, rules and regulations that may in any manner affect cost, progress, or performance of the work.”
2. Paragraph 3.03.B.1.c – Add the following paragraphs:
“c. If any portion of the Contract Documents conflicts with any other portion, the various documents comprising the Contract Documents govern in the following order of precedence: the Agreement; Supplementary Conditions (including Division 1 documents); these General Conditions; the Specifications; and the Drawings. As between detailed drawings and general drawings, the detailed drawings govern. As between noted materials and graphic indications of materials, the noted materials govern.

- d. Should the Contract Documents disagree as to quality or quantity of work required, the Contractor must provide the better quality or greater quantity unless the Owner gives written instructions to the contrary.
 - e. Where the drawings show only a portion of the work in full detail and the remainder is shown only in outline, the Contractor must execute the portions in outline as required for like portions shown in full detail. Where items are shown in diagrammatic/schematic drawings, the Contractor must verify location with the Construction Manager or as instructed by the Construction Manager before installation.”
3. Paragraph 3.04.A – Replace with the following:
- “A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work which affect the price of the work or contract times, or to modify the terms and conditions thereof, by either a written Change Order or a written Work Change Directive signed by the Owner or its authorized representative(s).”

D. ARTICLE 4 – AVAILABILITY OF LANDS: PHYSICAL CONDITIONS: REFERENCE POINTS

1. Paragraph 4.01.B – Delete paragraph in its entirety and insert the following:
- “B. Upon reasonable request, Owner shall furnish Contractor with a current Notice of Commencement.”
2. Paragraph 4.02 – Subsurface and Physical Conditions is supplemented with: In the preparation of Drawings and Specifications the ENGINEER has relied upon those indicated in Division 00 Section “Geotechnical Data”.
3. Paragraph 4.03.A.4 – Delete paragraph in its entirety and insert the following in its place:
- “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 in no event later than seventy-two (72) hours after first discovering that condition, and before further disturbing the subsurface or physical conditions or performing any work in connection therewith (except in an emergency as required by paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any work in connection therewith (except as aforesaid) until receipt of written order to do so. In the event the condition is continuing, Contractor shall send additional or subsequent notices at intervals of not less than twenty-one (21) consecutive days until the condition ceases or abates. Failure to provide such notices or avoid further disturbance shall constitute a waiver by Contractor of his right to seek adjustment of the contract times or contract price as a result of such condition.”

4. Paragraph 4.03.C.1.c – Add the following paragraph:
“c. Contractor has provided written notice to the Owner of the condition as required by Paragraph 4.03.A.4.”
5. Paragraph 4.03.C.1.d – Add the following paragraph:
“d. Engineer recommends to the Owner that the requested adjustment to the contract price or contract times is equitable.”
6. Paragraph 4.03.C.3 – Add the following language at the end of this paragraph: “In the event a claim is filed, the Contractor will not be relieved of the obligation to continue work during the resolution of the claim.”
7. Paragraph 4.05.A – Add the following paragraph to the end:
“The Contractor shall notify the Owner forty-eight (48) hours in advance for the establishment of the base lines, benchmarks, or layout work.
8. Paragraph 4.06 – Add the following subparagraph 4.06.A.1:
1. Delete Paragraphs 4.06.A and 4.06.B in their entirety and insert the following:
“A. No reports or Drawings related to hazardous Environmental Conditions at site are know to the Owner.
B. Not used.”

E. ARTICLE 5 – BONDS AND INSURANCE

1. Paragraph 5.01.A – Amend the second sentence to read: “These bonds shall remain in effect not less than one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents
2. Paragraph 5.01.C – Modify to provide for thirty days to provide substitute bonding and surety. Also, at the end of this paragraph, add the following: “...and both of which shall provide coverage security for the interim during which the bond has lapsed.”
3. Paragraph 5.01.D – Add the following paragraph:
“D. If the Contractor provided a certified or cashier’s check or letter of credit as Bid Security, Contractor shall furnish a Performance Bond in an amount at least equal to 100 percent of the Contract Price as security for the faithful performance of this agreement.”
4. Paragraph 5.01.E – Add the following paragraph:
“E. Each of the Bonds shall be on the forms attached to the Contract Documents, or substantially equivalent forms, and shall have a Surety thereon. Such Surety company or companies shall be approved by the Owner and in accordance with Paragraph 5.01. Each of the Bonds shall be submitted in accordance with Paragraph 2.01.”
5. Paragraph 5.02.B and 5.02.C – Add the following paragraphs following 5.02.A:
“B. All insurance must be placed with companies with an AM Best’s rating of at least A-VII and be acceptable to Owner; Owner’s acceptance will not be unreasonably withheld.

C. All surety and bonds provided must be executed by a surety licensed to conduct business in the State of Ohio and named in the current list of “Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Insurance Companies” as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department.”

6. Paragraph 5.04.C – Add the following new paragraph immediately after 5.04.B:
 "C. The Contractor shall, at its own expense, purchase and maintain the following minimum coverage:

1. Workers Compensation, for claims for bodily injury, sickness, disease or death as follows:
 - a. Coverage A Statutory Benefits as described by the applicable law.
 - b. Coverage B Employer’s Liability:

\$500,000 Bodily Injury by Accident - each employee
 \$500,000 Bodily Injury by disease - each employee
 \$500,000 Bodily Injury by disease - policy limit

For Ohio projects, the Contractor shall provide a copy of a certificate of premium payment from the Industrial Commission and Bureau of Workers Compensation, State of Ohio, for the period of time specified during which construction commences and copies of renewal certificates for subsequent periods, so long as the project continues. For work outside the State of Ohio, a Workers Compensation and Employer's Liability policy shall be certified. In this instance, a 60-day notice of cancellation or material change shall be provided to the Owner and Engineer.

2. Comprehensive General Liability Coverage for Bodily Injury and Property Damage - occurrence form.

General Aggregate	\$2,000,000	Each occurrence, combined single limit for Bodily Injury and Property Damage
Products – Completed Operations	\$1,000,000	Each occurrence
Aggregate	\$2,000,000	
Personal and Advertising Liability per Occurrence	\$1,000,000	Combined Single Limit for Bodily Injury and Property Damage

Coverage shall be extended to include the following:

- a. Per project and per location aggregate.
- b. Premises and operations coverage.
- c. Coverage for liability of independent contractors.
- d. Products and completed operations.
- e. Coverage for explosion, collapse and underground hazards.
- f. Stop-Gap Liability: All monopolistic states - \$1,000,000.
- g. Owner and Engineer as additional insureds (alternative: Furnish separate hi. Owner's protective liability including Engineer as a named Insured. Owner and Engineer to be additional insureds under Products and Completed Operation Coverage of Contractor).

- h. Waiver of Subrogation against Owner and Engineer.
 - i. 60-Day Notice of Cancellation or material change.
3. Comprehensive Automobile Liability Insurance - Occurrence Form

Any Automobile	\$1,000,000	Bodily Injury and Property Damage, Combined Single Limit
Borrowed, Non-Owned	\$1,000,000	Bodily Injury and & Hired Automobile Property Damage, Combined Single Limit

Coverage shall be extended to include:

- a. Contractual liability for assumed liability.
 - b. Owner and Engineer as additional insureds.
 - c. Waiver of Subrogation against Owner and Engineer.
 - d. 60 Day Notice of Cancellation or material change.
 - e. Motor Carrier Act Endorsement MCS-90 (where applicable).
 - f. Extra Wide/Extra Heavy Hauling Permit Endorsement where applicable.
4. An Umbrella Liability or Excess Liability Policy over primary comprehensive General and Automobile Liability shall be carried in a minimum amount of:

\$5,000,000 Each Occurrence
\$5,000,000 Aggregate

The Umbrella or Excess Policy shall be following form of:

- a. Any Additional Insureds under primary policy.
 - b. Per project and per location aggregates.
 - c. Explosion, Collapse or Underground Hazards.
 - d. Stop-Gap Liability.
 - e. Waiver of Subrogation against Owner and Engineer.
 - f. Watercraft (when employed to perform the work).
 - g. Aircraft (when employed to perform the work).
 - h. 60-Day Notice of Cancellation or material change shall be given to Owner and Engineer.”
7. Add new Paragraph 5.06.A.1 – Add the following new subparagraph after Paragraph 5.06.A.1: “a. Include as additional insureds: “Village of Ashville, Ohio, a municipal corporation; and their elected officials
8. Paragraph 5.06 – Change to provide that the Contractor shall obtain this policy.
9. Paragraph 5.06 – Add new paragraph 5.06.A.8 as follows:
“8. The maintenance of specified insurance coverage is a material element of the contract and failure to maintain or renew insurance coverage or provide evidence of renewal may be treated as a material breach of the contract.”
10. Paragraph 5.06 – Add new paragraph 5.06.A.9 and 10 as follows:

- “9. The policies of insurance required to be purchased and maintained by Contractor in accordance with Paragraph 5.06.A shall comply with the requirements of Paragraph 5.06.C.”
11. Paragraph 5.06.B – Delete and replace with the following:
“B. Contractor shall be responsible for any deductible or self-insured retention, and shall have those limits approved by Owner, which approval shall not be unreasonably withheld.”
12. Paragraph 5.11 – Add new Article 5.11 as follows:
"5.11 *Adequacy of Climate*
The Owner and Engineer, as well as their officers and employees, assume no responsibility for the adequacy of limits and coverages in the event of any claim(s) against the Contractor, its officers, employees, subcontractors, or any sub-subcontractor or agent of any of them. The types, forms, and amounts of insurance specified should be considered minimal, and in no way does the Owner or Engineer imply expressly or otherwise that the coverages specified will cover all exposures to loss and are in amounts sufficient to assure the Contractor, any subcontractor, or sub-subcontractor that uncovered losses will not occur or insurance limits will be adequate. The contractors should seek outside insurance counsel to determine adequate insurance protection for their particular operations. Meeting the insurance specifications shall in no way relieve any contractor, subcontractor or sub-subcontractor of any obligations under the contract, and any indemnification obligations shall survive the exhaustion of insurance limits carried, and shall be fully enforceable to the extent allowed by governing law, regardless of whether loss or losses are not covered by insurance. All insurance purchased by the Contractor for this work shall be ‘primary’ and ‘non-contributory’."

F. ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

1. Paragraph 6.01.A – After the first sentence add: “Contractor’s Work shall be performed according to the standard of care normally exercised by construction organizations within Ohio that are engaged in performing comparable services devoting such attention thereto and applying such skills as may be necessary to perform the work in accordance with the Contract Documents.”
2. Paragraph 6.02.C – Add a new paragraph as following:
“C. If the Contractor does not perform the work in accordance with the Contractor’s construction schedule and the project construction schedule, and it becomes apparent that the work may not be completed within the contract times, the Contractor shall, at no additional cost to the Owner or the Engineer, as necessary to improve the Contractor’s progress: (a) increase the number of employees in such crafts as will regain lost scheduled progress; and (b) increase the number of working hours per shift, shifts per working day, working days per week, the amount of equipment, or any combination of the foregoing measures to regain lost scheduled progress. Contractor shall furnish such employees, materials, facilities, and equipment, and shall work such hours, including extra shifts, overtime operations, and Sundays and holidays, as may be necessary to insure

the prosecution and completion of the work in accordance with the Contractor's construction schedule and the project construction schedule.

3. Paragraph 6.02.D – Add a new paragraph as follows:
“D. Contractor shall at all times maintain good discipline and order at the site. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. If the Owner or Engineer deems any employee of the Contractor or a subcontractor unsatisfactory, the Contractor must transfer or require its subcontractor to transfer such employee from the project immediately.”
4. Paragraph 6.04.A.3 – Add a new paragraph as following:
“3. In addition, the Owner may require the Contractor to prepare and submit a recovery schedule demonstrating the Contractor's program and proposed plan to regain lost schedule progress and to ensure completion of the work within the contract times. If the Owner finds the proposed plan not acceptable, the Contractor may be required to submit a new plan. If the actions taken by the Contractor or the Contractor's second proposed plan are not satisfactory, the Owner may require the Contractor to take any of the actions set forth in paragraph 6.02.C at no additional cost to the Owner.”
5. Paragraph 6.06.B – Add the following sentence to the end of paragraph 6.06.B.: “If requested by Owner, Contractor must furnish names of Subcontractor, Suppliers, or other persons or organizations within five days after Bid opening.
6. Add Paragraph 6.06.H as follows:
“H. The CONTRACTOR shall furnish to the OWNER and the ENGINEER, in writing, a copy of the Notice of Furnishing for each of the Subcontractors proposed for each portion of the work, prior to commencement of work on the respective subcontract.”
7. Add Paragraph 6.06.I as follows:
“I. OWNER or ENGINEER may furnish to any such Subcontractor, Supplier, or other person or organization, to the extent practicable, information about amounts paid to CONTRACTOR in accordance with CONTRACTOR'S Applications for Payment on account of the particular Subcontractor's, Supplier's, or other person's or other organization's work.”
8. Paragraph 6.08 – Replace this paragraph with the following:
“A. The OWNER has obtained the following permits:

OHIO EPA PERMIT TO INSTALL (PTI)
EPA NPDES PERMIT
OHIO EPA NOTICE OF INTENT (NOI)

The CONTRACTOR shall secure and pay for all other permits necessary to complete the construction.”

9. Paragraph 6.10 - Taxes, is amended as follows:
- “A. OWNER, being a public body, is exempt from taxes on material incorporated in the work. CONTRACTOR, therefore, is not required to pay such materials taxes. The OWNER will provide the tax exemption forms. These forms are to contain all necessary information required by the State.
- The CONTRACTOR shall complete all applicable information and submit to OWNER for signature. The CONTRACTOR may submit an additional form with the SUB-CONTRACTOR portion blank, which may be reproduced at later dates for various SUB-CONTRACTORS.
- B. 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.
- C. Contractor is specifically required to abide by all local tax requirements, if any, including income tax requirements to withhold at source. Contractor acknowledges that the Contract work may take place in more than one county and more than one city, and further acknowledges different tax burdens may be imposed in each. Contractor shall indemnify, defend, and hold Owner harmless from any federal, state, or local tax liabilities incurred as a result of Contractor performing the Work.”
10. Paragraph 6.11.A.3 – Replace with the following paragraph:
- “3. To the fullest extent permitted by law, the Contractor shall indemnify, defend, and hold harmless the Owner and Engineer and the consultants, professionals, agents, and employees of any of them from and against any and all claims, damages, loss and expenses, and all court costs or costs or arbitration or other dispute resolution costs, including but not limited to attorney’s fees incurred through such indemnified party’s attorney of choice, arising out of or resulting from the performance of the work but only to the extent caused in whole or in part by negligent acts or omissions of the Contractor, a subcontractor (regardless of tier), any one directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expenses was caused in part by a party indemnified hereunder. Such obligations shall not be construed to negate, abridge or reduce other rights or obligations of indemnity which would otherwise exist as to a party or persons described in this Paragraph 6.11.A.3. The Contractor shall promptly and contemporaneously reimburse the Owner, Engineer, and their respective successors and assigns for any cost, expense or attorneys’ fees incurred on account of any such suit or claim where incurred in enforcing the terms of the contract. The Contractor shall cause this indemnification provision to be included in every subcontract, regardless of tier, entered into with regard to the work.”
11. Paragraph 6.11.E – Add the following paragraph:
- “E. The Contractor shall construct and maintain all necessary temporary drainage and do all pumping necessary to keep all excavations, floors, pits, and trenches relating to the work free from water. Unless specifically assigned to another, the Contractor shall at all times provide protection for its work from rain, wind, storms, frost, or

heat, so as to maintain all work, materials, apparatus, and fixtures free from injury and damage. At the end of each day's work, the Contractor shall cover and/or protect to the extent possible all work likely to be damaged. If low temperatures make it impossible to continue operations in spite of cold-weather precautions, the Contractor shall cease operation and notify the Owner and Engineer in writing.”

12. Paragraphs 6.13 and 6.14 - Safety and Protection, are supplemented with the following:
“All construction work under this Agreement is subject to Chapter XVII of Title 29, Code of Federal Regulations (CFR) Part 1926 (formerly Chapter XIII of Title 29, CFR, Part 1518) titled, "Safety and Health Regulations for Construction" and subsequent amendments.”
13. Paragraph 6.17 - Shop Drawings and Samples – Delete this paragraph entirely.
14. Paragraph 6.19.A – Replace with the following paragraph:
“A. Contractor warrants and guarantees to Owner that all work will be performed in accordance with the Contract Documents, will be performed in a workmanlike manner, and will not be defective. In addition, the Contractor warrants to the Owner and Engineer that the Contractor and its subcontractors (regardless of tier) will exercise in the performance of the work the standard of care normally exercised by construction organizations within Ohio, which are engaged in performing comparable services.”
15. Paragraph 6.19.D – Add the following paragraph:
“D. Upon final payment, the Contractor must assign and transfer to Owner all guarantees, warranties and agreements from and with all contractors, subcontractors, vendors, suppliers, and manufacturers regarding their performance, quality of workmanship, or quality of materials supplied in connection with the work. Contractor represents and warrants that all such guarantees, warranties, and agreements will be in place and enforceable by the Owner in accordance with their terms. The Owner, however, will not assume through any assignment or transfer required under this subparagraph any of the Contractor's payment obligations to any entities.”
16. Paragraph 6.20.A – Delete entire paragraph and replace with the following:
“A. To the fullest extent permitted by law, the Contractor shall indemnify, defend, and hold harmless the Owner and Engineer and the consultants, professionals, agents, and employees of any of them from and against any and all claims, damages, loss and expenses, and all court costs or costs of arbitration or other dispute resolution costs, including but not limited to attorneys' fees incurred through such indemnified party's attorney of choice, arising out of or resulting in whole or in part from the performance of the work but only to the extent caused in whole or in part by negligent acts or omissions of the Contractor, a subcontractor (regardless of tier), anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expenses caused in part by a party indemnified hereunder. Such obligations shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or persons described in this Paragraph 6.20.A. The Contractor shall

promptly and contemporaneously reimburse the Owner, Engineer, and their respective successors and assigns for any cost, expense or attorneys' fees incurred on account of any such suit or claim where incurred in enforcing the terms of the contract. The Contractor shall cause this indemnification provision to be included in every subcontract, regardless of tier, entered into with regard to the work."

G. ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

1. Paragraph 9.01.A – Replace the first sentence with the following:
“A. Engineer will be the Owner’s representative during the construction period to the extent outlined in this Article 9 and subject to the limits set forth therein and in the contract documents.”

2. Paragraph 9.03.B – Add a new paragraph as follows:
“B. The responsibilities and authority and limitation thereon of the Resident Project Representative will be as provided in these Supplementary Conditions:
 1. Conduct on site observations of the Work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents.
 2. Report to ENGINEER whenever any Work will not produce a completed Project that conforms generally to the Contract Documents or will prejudice 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 on any inspection, test or approval required to be made; and advise ENGINEER of Work that should be corrected, rejected or should be uncovered for observation, or requires special testing, inspection or approval.
 3. Verify that tests, equipment and systems start-ups and operating and maintenance training are conducted in the presence of the appropriate personnel, and that CONTRACTOR maintains adequate records thereof; and observe, record and report to ENGINEER appropriate details relative to the test procedures and start-ups.
 4. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to ENGINEER.
 5. Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed and transmit to CONTRACTOR clarifications and interpretations as issued by ENGINEER.
 6. Consider and evaluate CONTRACTOR's suggestions for modifications in Drawings or Specifications and report recommendations to ENGINEER.
 7. Limitations of authority by Resident Project Representative:
 - a) Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items), unless authorized by ENGINEER.
 - b) Shall not exceed limitations of ENGINEER's authority as set forth in the General Conditions or Contract Documents.
 - c) Shall not undertake any of the responsibilities of CONTRACTOR, Subcontractor, Suppliers, or CONTRACTOR's superintendent.

- d) Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advise or directions are specifically required by the Contract Documents.
 - e) Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
 - f) Shall not accept Shop Drawings or Sample submittals from anyone other than CONTRACTOR.
 - g) Shall not authorize OWNER to occupy the Project in whole or in part.
 - h) Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by ENGINEER.”
3. Paragraph 9.09.F – Add the following paragraph:
“F. Under no circumstances is Engineer or resident project representative authorized to approve on behalf of Owner variations in the work which result in adjustments to the contract times or contract price. Contractor may not rely upon any verbal communication from any party as to the authorization to perform work which may give rise to adjustments in contract times or contract price.”

H. ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

1. Paragraph 10.03.A.4 – Add the following paragraph:
“4. In no event is the Contractor entitled to reserve any rights or take other similar action with respect to a change order if the effect or intent of such reservation or action would be to accommodate a further adjustment in the contract times, contract price, or both, after the Contractor executes the change order. By executing a change order, the Contractor irrevocably certifies that the elements of the change order described are completely satisfied and waives all rights to seek further adjustment of the contract times, contract price, or both, at a later date with respect to the associated change in the work.”
2. Paragraph 10.05.G – Add the following:
“Owner makes no representations with regard to subsurface conditions or site availability other than those set forth in the Contract Documents. Contractor acknowledges and agrees it will make no claim against Owner which would affect additional contract price in the event that actual subsurface conditions do not conform to those indicated by the Contract Documents or other subsurface investigations conducted by Contractor. Contractor assumes the risk of the assumptions made with regard to subsurface conditions in formulating the bid. Contractor’s sole remedy in such an event shall be an increase in contract times which may be granted by Engineer and Owner should Contractor make a claim therefore as required by General Conditions 10.05.”

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

1. Paragraph 11.01.A.5.c – Add the following sentence to the end of the paragraph:
“Equipment or machinery with a value of less than \$1,000 will be considered small tools.”

2. Replace Paragraph 11.03.D.1 with the following:
“If the quantities in the Contract documents are changed by more than 25 percent in a proposed Change Order such that application of the agreed unit prices to the quantities of work proposed causes substantial inequity to the owner or the Contractor, the applicable unit prices may be negotiated and equitably adjusted for those quantities in excess of 25 percent.”

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

1. Paragraph 12.01.A – Replace the first sentence of Paragraph 12.01.A in its entirety with the following: “The Contract Price may only be changed by a written Change Order signed by the Contractor and the Owner or its authorized representative(s).”
2. Paragraph 12.01.B – Replace the paragraph to read as follows: “B. The value of any Work covered by a Change Order, any claim for an increase or decrease in the Contract Price, or any claim for damages shall be determined as follows:”
3. Paragraph 12.01.C.2.e – Add the following at the end of paragraph GC-12.01.C.2.e: “Any change that results in a net decrease in cost shall include the appropriate overhead and profit added thereto calculated as set forth in ARTICLE 12 of the General Conditions.”
4. Paragraph 12.01.D – Insert new paragraph as follows: “D. In no event shall Contractor be entitled to any increase in the Contract Price on account of any adverse weather.”
5. Paragraph 12.02.A – The first sentence of Paragraph 12.02.A should be replaced with the following: “The Contract Times may only be changed by a written Change Order signed by the Contractor and the Owner or its authorized representative(s).”
6. Paragraph 12.02.B – Replace Paragraph 12.02.B with the following language:
“B. If the Contractor wishes to make a claim for an increase in the Contract Times, prompt written notice as provided herein shall be given. The Contractor’s claim shall include an estimate of cost and of probable effect of delay on progress of the work, a detailed schedule which identifies the critical portions of the work impacted by the delaying event and the dates of such impact, and a statement from Contractor that the increase requested is the entire increase in the Contract Time associated with the claim. The failure to provide such information and statement within the time period established in Paragraph 10.05.B shall constitute an irrevocable waiver of the claim. In the case of a continuing delay occurring on consecutive days, only one claim is necessary, provided, however, that within ten (10) days of the cessation of the cause of the continuing delay, the Contractor shall notify the Engineer in writing that the cause of the delay has ceased. The failure to give notice of the cessation of the cause of the continuing delay shall constitute an irrevocable waiver of any claim based upon the continuing delay.”
7. Add the following paragraph as Paragraph 12.02.C:
“C. In addition to the requirements of Paragraph 12.02.B, if adverse weather conditions are the basis for a claim for additional time, the Contractor shall support such claim with data acceptable to the Owner and Engineer that substantiates that weather conditions were significantly abnormal for the period of time and could not have reasonably been anticipated and that weather conditions had an adverse effect on a

critical element of the scheduled construction. Notwithstanding any other provision of the Contract Documents to the contrary, the Contract Times will not be adjusted on account of the impact of any normal adverse weather or any of the work or on account of the impact of any abnormal adverse weather on non-critical elements of the work. The support for and evaluation of all adverse-weather claims shall be based upon average weather conditions over the ten (10) years immediately preceding the dates at issue and the claim as such weather conditions are recorded at the nearest local weather station.

8. Paragraph 12.03.F – Add new paragraph as follows:
“F. Any proposed time extensions for delays requested because of abnormal weather conditions shall be subject to Paragraph 12.02.C.”

K. ARTICLE 14 – PAYMENT TO CONTRACTOR AND COMPLETION

1. Paragraph 14.02.A.2 – Replace in its entirety with the following:
“2. Beginning with the second application for payment, each application shall include a notarized affidavit of Contractor stating that all previous progress payments received on account of the work have been applied to discharge Contractor’s legitimate obligations associated with the prior applications for payment. In addition to any other information that the Owner or Engineer may require, the Contractor’s notarized application for payment package shall include: (1) a partial conditional lien waiver from the Contractor for the total payment requested in the application for payment; (2) a partial conditional lien waiver from all subcontractors (regardless of tier) and material and equipment suppliers on those account the Contractor is seeking payment in the application for payment for the total amount of such payment requested; (3) a partial unconditional lien waiver from the Contractor for the sum of all previous paid progress payments. Preliminary copy of the Application for Payment shall have quantities reviewed and agreed by the Engineer’s Resident Project Representative, if on site.”
2. Add new Paragraph to 14.02.A.4 as follows:
“4. Each progress payment shall be accompanied by an approved and updated schedule or acceptable recovery schedule or progress payment will be rejected.”
3. Add new Paragraph 14.02.A.5 as follows:
"5. Partial Payment
Partial payments to the CONTRACTOR for labor performed and materials delivered to the site or incorporated into the Project under either a unit or lump sum price contract shall be made at the rate of 92 percent of the estimates as prepared by the CONTRACTOR and approved by the ENGINEER until the work under this Contract is determined by the ENGINEER to be 50 percent complete.

Labor performed and material incorporated into the Project after the work under this Contract is approved as 50 percent complete, will be paid for on the basis of 100 percent of the estimates as prepared by the CONTRACTOR and approved by the ENGINEER.

A Contract will be considered 50 percent complete when the CONTRACTOR has been paid an amount equal to 50 percent of the total cost of the labor of the Contract and 50 percent of the total cost of the material of the Contract.

All material furnished and delivered but not actually included in the construction and approved by the ENGINEER, after the work under this Contract is 50 percent complete, will be paid for at the rate of 92 percent of the invoiced value of the materials. The balance of such estimates will be paid when the material is incorporated into and becomes a part of the construction.

4. Paragraph 14.02.A.6 – Add new paragraph as follows:

6. Final Estimate

A final estimate shall be made as soon as practicable after completion of the work under this Contract and final approval by the ENGINEER and acceptance by the OWNER, in writing. After such approval, the CONTRACTOR will be paid such portion of the remaining Contract Price as is necessary to bring the aggregate partial payments received to 96 percent of this Final Estimate. The final estimate will be based on a total costs including all change orders.

5. Paragraph 14.02.A.7 – Add new paragraph as follows:

“ 7. Retention

After the Contract is 50 percent complete all retained funds will be placed in an escrow account and the OWNER agrees to pay the CONTRACTOR the accumulated interest thereon upon release of the retainage, less expenses incurred in the establishment and maintenance of that escrow account by the Owner.

Upon acceptance of Substantial Completion, the amount retained will be reduced to 4%. The 4% balance shall be retained for 30 days after completion and final approval by the OWNER in writing.

If at any time prior to Final Payment the Contractor is found to be in violation of Paragraph 14.02 of the General Conditions, the Owner will retain 10% of the amount of all Progress Payments.”

6. Paragraph 14.02.B.6, add new paragraph as follows:

- “6. Engineer may also refuse to recommend a minimum of 25 percent up to a maximum of 100 percent of any payment if any of the following occur:
- a. Third party claims filed or reasonable evidence indicating probable filing of such claims.
 - b. Failure of the Contractor to make payments properly to Subcontractors or for labor, materials, or equipment. Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum.
 - c. Damage to the Owner or another Contractor.
 - d. Reasonable evidence that the Work will not be completed within the Contract Time.
 - e. Persistent failure to carry out the Work in accordance with the Contract Documents.
 - f. Failure to maintain updating of "Record Drawings”.

- g. Failure to properly coordinate with other Contractors.
 - h. O&M Manual not submitted to the Engineer when equipment is delivered to job site.”
- 7. Paragraph 14.02.D.4 – Insert the following paragraphs immediately following paragraph 14.02.D.3:
 - “4. Notwithstanding any other provision of the contract documents to the contrary, if Contractor disputes any determination by the Owner or Engineer with regard to an application for payment or a certificate for payment, the Contractor must nevertheless continue to prosecute the work expeditiously.
 - 5. The Contractor shall keep the funds encumbered for the work free and clear of all claims as defined under Ohio Revised Code Section 1311.25, et seq., which claims are also referred to throughout the Contract Documents as liens. Notwithstanding any other provision of the Contract Documents to the contrary, if any such claim is filed or asserted, or where there is any reason to believe that any such claim may be filed or asserted at any time, the Owner may refuse to make any payment otherwise due to the Contractor or withhold from any payment due the Contractor a sum sufficient, in the opinion of the Owner or as required by law, to pay all obligations and expenses necessary to satisfy such claim and to indemnify the Owner against any such claim and until the Contractor furnishes satisfactory evidence that the indebtedness and the claim in respect thereof, if any, has been satisfied, discharged, and released of record, if any, as provided by law pending the resolution of any dispute between the Contractor and the entity filing such claim. If such evidence is not furnished by the Contractor to the Owner within a period of seven (7) days after demand therefore, the Owner may discharge such indebtedness as provided by law and deduct the amount required therefore together with any and all losses, costs, damages and attorneys’ fee (incurred through an attorney of the Owner’s choosing) suffered or incurred by the Owner from any sum payable to the Contractor. If payments then and thereafter due to the Contractor are not sufficient to cover such amount, the Contractor shall immediately pay the difference to the Owner. Final payment to the Contractor may be withheld until the work and any funds encumbered therefore are free and clear of any and all claims or rights thereto arising because of the work performed or materials furnished under the Contract Documents.”
- 8. Paragraph 14.04.F – add new paragraph as follows:
 - “F. The Owner and the Engineer shall have the option to correct or conclude any and all Construction Punch List items not completed by the Contractor within the time specified in the Substantial Completion Certificate by utilizing its own forces or by hiring others, pursuant to Termination of the Contract under Article 15. The cost of such correction of remaining Construction Punch List items by the Owner or others shall be deducted from remaining monies due the Contractor. If the Contractor does not complete certain Construction Punch List items within specified time periods, all warranties and guarantees related to such incomplete Construction Punch List items shall not begin to elapse until issuance of Final Payment for the work.”

9. Paragraph 14.05 – Add the following new paragraph immediately after 14.05.A.1:
“2. Owner may at any time request Contractor in writing to permit Owner to take over operation of any such part of the Work although it is not substantially complete. A copy of such request will be sent to Engineer and within a reasonable time thereafter Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If Contractor does not object in writing to Owner and Engineer that such part of the Work is not ready for separate operation by Owner, Engineer will finalize the list of items to be completed or corrected and will deliver such lists to Owner and Contractor together with a written recommendation as to the division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, maintenance, utilities, insurance, warranties, and guarantees for that part of the Work, which will become binding upon Owner and Contractor at the time when Owner takes over such operation (unless they shall have otherwise agreed in writing and so informed Engineer). During such operation and prior to Substantial Completion of such part of the Work, Owner will allow Contractor reasonable access to complete or correct items on said list and to complete other related Work.”
10. Paragraph 14.05.A.2 shall be renumbered to 14.05.A.3.
11. Paragraph 14.05.A.3 shall be renumbered to 14.05.A.4.
12. Paragraph 14.05.A.4 shall be renumbered to 14.05.A.5.
13. Paragraph 14.07.D – Add this additional paragraph following 14.07.C.1:
“2. Notwithstanding any provision of the Contract Documents to the contrary, (a) the Owner may make final payment or any part thereof jointly to the Contractor and its subcontractors (regardless of tier) and material and equipment suppliers; and (b) final completion of the work will not occur until:
1. The work is entirely complete in accordance with the Contract Documents;
2. The Contractor has fulfilled all of its duties and obligations under the contract (other than warranty and similar obligations that survive final completion);
3. The Contractor delivers to the Owner a final unconditional lien waiver from the Contractor and each of the Contractor’s subcontractors (regardless of tier) and material and equipment suppliers; and
4. The Contractor has fulfilled all of its project closeout obligations, including, but not limited to, providing all maintenance and operating instructions and manuals, and all drawings, certificates, bonds, guarantees, and other documents required by the Contract Documents to the Engineer or Owner as appropriate.”
14. Paragraph 14.10 – Add new paragraph as follows:
“14.10. The CONTRACTOR, ENGINEER, and OWNER will execute a final Contract Completion Certificate for the Contract which indicates the date of acceptance. The form will be provided by the ENGINEER upon written notification by the Contractor that the Work is complete.”

L. ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

1. Paragraph 15.02.C – Replace the second sentence of Paragraph 15.02.C with the following sentence: “If the unpaid balance of the Contract Price exceeds all claims, losses and damages (including but not limited to all fees and charges of Engineers, Architects, attorneys, consultants, and other professionals, all as chosen by the Owner, and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing work, such excesses will be paid to Contractor.”
2. Paragraph 15.02.G – Add the following new paragraph immediately after Paragraph 15.02.F:

“G. In the event that the Owner’s termination for cause pursuant to this paragraph is determined by an arbitrator, arbitration panel or court to have been unjustified, such termination shall be deemed to have been a termination pursuant to Paragraph 15.03.”
3. Paragraph 15.02.H – Add the following new paragraph:

“H. Upon termination pursuant to this Paragraph 15.02, the Contractor shall, unless the notice of termination specifically directs otherwise, immediately discontinue the work, place no further orders or subcontracts for materials, equipment, services, or facilities, except as may be necessary for completion of such portion of the work as is not discontinued; promptly make every effort to procure cancellation upon terms satisfactory to the Owner of all orders and subcontracts to the extent that they relate to the performance of a discontinued portion of the work; and thereafter do only such work as may be necessary to preserve and protect the work already in progress and to protect materials and equipment on the Project site or in transit thereto, and deliver such materials and equipment to Owner upon demand.”
4. Paragraph 15.02.I – Add the following new paragraph:

“I. When the Owner has terminated the Contractor’s services pursuant to this Paragraph 15.02, the termination shall not affect any rights or remedies of the Owner against the Contractor then existing or which may thereafter accrue. Any retention or payment of funds due the Contractor by the Owner shall not release the Contractor from liability for performance of the work in accordance with the requirements of the Contract Documents.”
5. Paragraph 15.03.A.1 – Replace with the following:

“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 not to exceed fifteen percent (15%) of the cost of the completed and acceptable Work;”
6. Paragraph 15.03.C – Add the following new paragraph immediately after paragraph 15.03.B:

“C. If the Owner terminates the contract without cause and for Owner’s convenience, and there exists an event of default by the Contractor, the Contractor shall only be entitled to receive such sums as it would be entitled to receive under Paragraph 15.02.

 1. Upon receipt of written notice from the Owner of such termination for the

Owner's convenience, the Contractor shall:

- a. cease operations as directed by the Owner in the notice;
- b. take actions necessary, or that the Owner may direct, for the protection and preservation of the work; and
- b. except for work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders."

M. ARTICLE 16 – DISPUTE RESOLUTION

1. Paragraph 16.02, Dispute Resolution – Insert the following new paragraph:

“16.02 *Dispute Resolution*:

A. Any claim arising out of or related to the contract, except claims relating to aesthetic effect or those waived, shall, after decision by the Engineer or one hundred twenty (120) days after submission of the claim to the Engineer, whichever is sooner, be subject to arbitration or litigation at the Owner's option if the Owner is a party to the claim. The Owner's decision to arbitrate or litigate is at the Owner's sole discretion; provided, however, that in the event the Owner has not designated either arbitration or litigation within ten (10) days after the Owner's receipt of a written request from the Contractor to do so, the Owner shall be deemed to have designated litigation.”

2. Paragraph 16.03, Arbitration – Insert the following new paragraph:

“16.03 *Arbitration*:

A. If the Owner decides that a claim to which it is a party shall be resolved by arbitration, the arbitration shall be initiated and proceed in accordance with the construction industry arbitration rules of the American Arbitration Association in effect as of the date on which the demand for arbitration is made. Any arbitration to which the Owner is a party and which arises out of or relates to this project shall be held only in Pickaway County, Ohio.

B. During arbitration proceedings, the Owner and Contractor shall not be relieved of the obligation to continue to perform their obligations under the Contract Documents which should proceed notwithstanding the pendency of an arbitration.

C. A demand for arbitration shall be made within the time limits specified in these General Conditions, if applicable, and in other cases within a reasonable time after the claim has arisen, and in no event shall it be made after the date when institution of legal or equitable proceeds based upon such claim would be barred by the applicable statute of limitations as determined by Ohio law.

D. A party who files a Notice of Demand for arbitration must assert in the demand all claims then known to that party on which arbitration is permitted to be demanded. When a party fails to include a claim through oversight, inadvertence or excusable neglect, or when a claim has matured or been acquired subsequently, the arbitrator or arbitrators may permit amendment.

E. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with the applicable law in any court having jurisdiction thereof.

3. Paragraph 16.04, Litigation – Insert the following new paragraph:
“16.04 – *Litigation*:

Any litigation to which the Owner is a party and which arises out of or relates to the project shall be brought and held only in the Common Pleas Court of the county where the Work is located. The Owner and Contractor consent to the exclusive jurisdiction of and venue in that court.

4. Paragraph 16.05, Limitation on Consolidation or Joinder – Insert the following new paragraph:
“16.05 – *Limitation on Consolidation or Joinder*:

Except with the Owner’s written consent, no arbitration or litigation arising out of or relating to the project shall include, by consolidation or joinder, or in any other manner, any parties other than the Owner and the Contractor. The Owner’s consent to joinder must contain a specific reference to this subparagraph 16.05 and shall not be construed as consent to arbitration or litigation involving any entity or claim not described therein.”

N. ARTICLE 17 – MISCELLANEOUS

1. Paragraph 17.01.A.1 and A.2 – Replace Paragraphs 17.01.A.1 and A.2 in their entirety with the following:
“1. Delivered in person to the individual referenced in the Agreement, or
2. Delivered or sent by registered or certified mail, postage prepaid, to the persons or individual set forth in the Agreement.
3. If the individual referred in the Agreement is no longer employed with said party, then it shall be delivered to an officer of the Corporation for whom it is intended.”

1.3 ADDITIONAL PROVISIONS

A. Access to Places of Manufacture

1. The ENGINEER, OWNER, and their inspectors and agents shall, at all times, have immediate access to all places of manufacture where materials specifically identified for the projects are being made. The CONTRACTOR shall, whenever so requested, give the ENGINEER access to the proper invoices, bills of lading, etc., and shall provide scales and assistance for weighing or other assistance for measuring and testing any of the materials.

B. Liquidated Damages

1. The CONTRACTOR, and its Surety, acknowledges that time is of the essence in performing the work stipulated in the Agreement. Should CONTRACTOR fail to meet the completion dates set forth in the Agreement, OWNER will suffer added administrative and engineering costs, the necessity of adjusting its start-up program for employing the improvements constructed pursuant to this Agreement along with

substantial costly inconveniences, thereby reducing the value to OWNER of this Agreement. Thus, for each day by which CONTRACTOR fails to meet a completion date, CONTRACTOR'S compensation shall be reduced by the following amount of liquidated administrative cost damages per day.

<u>Item</u>	<u>Damages</u>
Substantial Completion	\$1,000.00
Completion of Work	\$1,000.00

In the event that the Substantial Completion date has surpassed the Final Completion date, the liquidated damages shall be cumulative. Owner's identification of the liquidated damage figure does not include a component for fines or administrative penalty from governmental agencies.

2. The CONTRACTOR shall guarantee that it can and will complete the work within the time limit stated in this Contract or within the times as extended as provided elsewhere in this Contract. For the reason that the damage and loss and additional expenses, fees, etc., to the OWNER which will result from the failure of the CONTRACTOR to complete the work within the stipulated time, and will be most difficult or impossible to accurately assess the CONTRACTOR shall be assessed liquidated damages for each calendar day including Saturdays, Sundays, and holidays by which the CONTRACTOR shall fail to complete the work of any part thereof, in accordance with provisions hereof and such liquidated damages shall not be considered as a penalty. The OWNER will deduct and retain out of any money due or to become due hereunder the amount of the liquidated damages, and in case these amounts are less than the amount of liquidated damages, the CONTRACTOR shall be liable for the payment of the difference upon demand of the OWNER.

3. It is agreed that time is of the essence of each and every portion of the work wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where, under the Agreement, an additional time is allowed for completion of any work, the new time limit fixed by such extension shall be of the essence of this Agreement; provided that the CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due:
 - a. To any preference, priority or allocation order duly issued by the Government.
 - b. To any unforeseeable cause beyond the control and without the fault or negligence of the CONTRACTOR, including, but not restricted to, acts of God or of a public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of an Agreement with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather; and
 - c. To any delays of Subcontractors or suppliers occasioned by any of the causes specified in paragraphs B.3.a and B.3.b of this Article.

4. All claims for an extension of the Contract Time must conform to the requirements of General Conditions Article 12. The granting of an extension of the Contract Time is not a requisite to relieving the CONTRACTOR from the assessment of liquidated damages.

C. Archeological Discoveries

1. When the CONTRACTOR'S excavating operations encounter remains of prehistoric people's dwelling sites or artifacts of historical or archeological significance, the operations shall be temporarily discontinued. The ENGINEER will contact archeological authorities to determine the disposition thereof. After consultation with the archeological authorities, the ENGINEER may elect to discontinue the work in the area indefinitely, resume normal excavation, or excavate for artifacts. When directed by the ENGINEER to excavate for artifacts, the CONTRACTOR shall excavate the site in such a manner as to preserve the artifacts encountered and shall remove them for delivery to the custody of the proper authorities. Such excavation will be considered and paid for as extra work.

D. Chemicals, Substances, and Materials in Contact with Potable Water

1. All chemicals, substances, and materials that come in contact with potable water shall conform to Ohio Administrative Code OAC 3745-83-03 which reads as follows:

"All chemicals, substances, and materials added to or brought in contact with water in or intended to be used in a public water system or used for the purpose of treating, conditioning, altering, or modifying the characteristics of such water shall be shown by either the manufacturer, distributor, or purveyor to be non-toxic and harmless to humans when used in accordance with the formulation and concentration as specified by the manufacturer, and shall conform with the "American National Standards Institute/National Sanitation Foundation" (ANSI/NSF) standard 60 or 61. Any organization certified by the "American National Standards Institute" may certify in writing that a product conforms with these standards.

All chemicals, substances, and materials approved by the Ohio Environmental Protection Agency prior to the effective date of this rule shall retain approval for one year."

2. The two organizations that are currently certified by the "American National Standards Institute" are:
 - a. NSF International: Phone (313) 769-8010
 - b. Underwriters Laboratories, Inc. Phone (708) 272-8800

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 00 7300

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SECTION 00 7343

WAGE RATE REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCE

- A. Prevailing wage rates, as determined by the United States Department of Labor for Pickaway County, the county in which the project is located, shall be used in accordance with the provisions of the Davis-Bacon Wage determinations as provided in 29 CFR 1.5 and 1.6(b). A copy of these rates is attached.

1.2 USE

- A. Keep posted at all times throughout the Contract period the wage rate pages that are effective at the time of Bid opening.
- B. Maintain, throughout the construction period, a legible up-to-date copy. Post in a conspicuous place accessible to workers and protected from the weather.
- C. The successful Bidder shall be required to conform to all provisions of the Federal Davis-Bacon and Related Acts (The Act) which requires that all laborers and mechanics employed by contractors and subcontractors performing on federal contracts (and contractors and subcontractors performing on federally assisted contracts under the related ACTS) in excess of \$2,000 pay their laborers and mechanics not less than the prevailing wage rates and fringe benefits, as determined by the Secretary of Labor, for corresponding classes of laborers and mechanics employed on similar projects in the area.
- D. All Bidders must abide by the latest prevailing wage rate listing effective at the time of Bid opening.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 00 7343

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General Decision Number: OH160117 08/26/2016 OH117

Superseded General Decision Number: OH20150117

State: Ohio

Construction Type: Building

County: Pickaway County in Ohio.

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

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the solicitation was issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Table with 2 columns: Modification Number, Publication Date. Rows 0-13 showing dates from 01/08/2016 to 08/26/2016.

ASBE0008-010 07/01/2015

Table with 3 columns: Rates, Fringes. Row: ASBESTOS WORKER/HEAT & FROST INSULATOR...\$ 29.40 14.77

BROH0055-007 07/01/2015

Table with 3 columns: Rates, Fringes. Rows: TILE FINISHER...\$ 25.76 4.79, TILE SETTER...\$ 26.31 4.79

CARF0200-003 05/01/2016

Table with 3 columns: Rates, Fringes. Row: CARPENTER (Soft Floor Layer and Floor Laying - Hardwood Floors Only)...\$ 26.07 15.15

http://www.wdol.gov/wdol/scaffiles/davisbacon/OH117.dvb?v=13

9/22/2016

IRON0172-005 06/01/2016

Table with 3 columns: Rates, Fringes. Row: IRONWORKER, REINFORCING...\$ 28.12 19.94

IRON0550-009 05/01/2015

Table with 3 columns: Rates, Fringes. Row: IRONWORKER, ORNAMENTAL...\$ 26.66 18.36

LABO0423-003 06/01/2016

Table with 3 columns: Rates, Fringes. Row: LABORER Mason Tender - Brick & Cement/Concrete...\$ 25.34 10.30

PAIN1275-001 11/01/2015

Table with 3 columns: Rates, Fringes. Row: PAINTER (Spray)...\$ 25.20 11.26

PLUM0189-005 06/01/2013

Table with 3 columns: Rates, Fringes. Row: PIPEFITTER...\$ 34.08 20.06

* SFOH0669-009 04/01/2016

Table with 3 columns: Rates, Fringes. Row: SPRINKLER FITTER (Fire Sprinklers)...\$ 35.08 19.99

SHEE0024-028 06/01/2015

Table with 3 columns: Rates, Fringes. Row: SHEET METAL WORKER (Excludes HVAC Duct and Unit Installation)...\$ 27.71 23.18

SUOH2012-098 08/29/2014

Table with 3 columns: Rates, Fringes. Rows: ABATEMENT WORKER: ASBESTOS (Removal from Ceilings, Floors, and Walls)...\$ 22.74 9.25, BRICKLAYER...\$ 20.00 1.60, CARPENTER (Acoustical Ceiling Installation Only)...\$ 24.17 8.61, CARPENTER (Excluding Acoustical Ceiling Installation, Floor Laying - Hardwood Floor, and Soft Floor Laying)...\$ 25.00 0.00

http://www.wdol.gov/wdol/scaffiles/davisbacon/OH117.dvb?v=13

9/22/2016

ELEC0038-004 04/25/2016

Table with 3 columns: Rates, Fringes. Row: ELECTRICIAN (HVAC/Temperature Controls Installation Only)...\$ 37.13 20.38

FOOTNOTES: a. 6 Paid Holidays: New Year's Day; Memorial Day; July 4th; Labor Day; Thanksgiving Day; & Christmas Day b. 1 week's paid vacation for 1 year's service; 2 weeks' paid vacation for 2 or more years' service

ELEC0683-004 06/02/2014

Table with 3 columns: Rates, Fringes. Row: ELECTRICIAN (Low Voltage Wiring Only)...\$ 24.88 8.97

ELEC0683-007 05/30/2016

Table with 3 columns: Rates, Fringes. Row: ELECTRICIAN (Excludes Installation of HVAC/Temperature Controls and Low Voltage Wiring)...\$ 31.85 17.38

ELEV0037-003 01/01/2016

Table with 3 columns: Rates, Fringes. Row: ELEVATOR MECHANIC...\$ 42.03 29.985+a+b

PAID HOLIDAYS: a. 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 who has worked in business more than 5 years; 6% for less than 5 years' service.

ENGI0018-041 06/01/2016

Table with 3 columns: Rates, Fringes. Row: POWER EQUIPMENT OPERATOR Bobcat/Skid Steer/Skid Loader; Concrete Pump; Crane...\$ 33.84 14.41, Bulldozer...\$ 32.72 14.41, Oiler...\$ 26.04 14.41

ENGI0066-048 06/01/2014

Table with 3 columns: Rates, Fringes. Row: POWER EQUIPMENT OPERATOR Grader/Blade...\$ 31.02 17.51, Mechanic...\$ 31.52 17.51

http://www.wdol.gov/wdol/scaffiles/davisbacon/OH117.dvb?v=13

9/22/2016

Table with 3 columns: Rates, Fringes. Rows: CEMENT MASON/CONCRETE FINISHER...\$ 26.07 12.34, DRYWALL FINISHER/TAPER...\$ 20.44 4.75, DRYWALL HANGER AND METAL STUD INSTALLER...\$ 21.15 3.75, GLAZIER...\$ 22.60 11.02, IRONWORKER, STRUCTURAL...\$ 26.52 16.23, LABORER: Common or General...\$ 21.27 6.67, LABORER: Landscape & Irrigation...\$ 13.74 0.00, LABORER: Pipelayer...\$ 23.98 8.58, OPERATOR: Backhoe/Excavator/Trackhoe...\$ 27.26 9.80, OPERATOR: Forklift...\$ 22.79 12.76, OPERATOR: Loader...\$ 29.66 12.61, OPERATOR: Paver (Asphalt, Aggregate, and Concrete)...\$ 30.28 13.29, OPERATOR: Roller...\$ 28.83 12.72, PAINTER (Brush and Roller)...\$ 23.87 9.42, PLUMBER...\$ 25.28 6.87, ROOFER...\$ 25.24 11.38, SHEET METAL WORKER (HVAC Duct and HVAC Unit Installation Only)...\$ 26.26 15.77, TRUCK DRIVER: Dump (All Types)...\$ 24.32 11.73

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

http://www.wdol.gov/wdol/scaffiles/davisbacon/OH117.dvb?v=13

9/22/2016

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.

- * 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 Regional Office for the area in which the survey was conducted because those Regional Offices have 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.

END OF GENERAL DECISION

WAGE DETERMINATION APPEALS PROCESS

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

http://www.wdol.gov/wdol/scaffiles/davisbacon/OH117.dvb?v=13

9/22/2016

http://www.wdol.gov/wdol/scaffiles/davisbacon/OH117.dvb?v=13

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General Decision Number: OH160002 09/02/2016 OH2

Superseded General Decision Number: OH20150002

State: Ohio

Construction Types: Heavy and Highway

Counties: Ohio Statewide.

Heavy and Highway Construction Projects

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the solicitation was issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Table with 2 columns: Modification Number, Publication Date. Lists 21 modifications from 01/08/2016 to 09/02/2016.

BRKY0007-003 06/01/2011

LAWRENCE

Table with 2 columns: Rates, Fringes. Shows rates for Bricklayer, Stonemason at \$28.29 and 16.80.

BROH0001-001 07/01/2015

DEFIANCE, FULTON (Excluding Fulton, Amboy & Swan Creek Townships), HENRY (Excluding Monroe, Bartlow, Liberty, Washington, Richfield, Marion, Damascus & Townships & that part of Harrison Township outside corporate limits of city of Napoleon), PAULDING, PUTNAM and WILLIAMS COUNTIES

http://www.wdol.gov/wdol/scaffiles/davisbacon/OH2.dvb?v=21

9/22/2016

Table with 2 columns: Rates, Fringes. Shows rates for Bricklayer, Stonemason at \$30.10 and 14.01.

Table with 2 columns: Rates, Fringes. Shows rates for CEMENT MASON/CONCRETE FINISHER at \$29.48 and 12.62.

FULTON (Townships of Amboy, Swan Creek & Fulton), HENRY (Townships of Washington, Damascus, Richfield, Bartlow, Liberty, Harrison, Monroe, & Marion), LUCAS and WOOD (Townships of Perrysburg, Ross, Lake, Troy, Freedom, Montgomery, Webster, Center, Portage, Middleton, Plain, Liberty, Henry, Washington, Weston, Milton, Jackson & Grand Rapids) COUNTIES

Table with 2 columns: Rates, Fringes. Shows rates for Bricklayer, Stonemason at \$28.85 and 17.91.

CUYAHOGA, LORAIN & MEDINA (Hinckley, Granger, Brunswick, Liverpool, Montville, York, Homer, Harrisville, Chatham, Litchfield & Spencer Townships and the city of Medina)

Table with 2 columns: Rates, Fringes. Shows rates for BRICKLAYERS, CLEANERS, POINTERS, STONEMASONS, SANDBLASTERS, SEWER BRICKLAYERS & STACK BUILDERS, SWING SCAFFOLDS.

CARROLL, COLUMBIANA (Knox, Butler, West & Hanover Townships), STARK & TUSCARAWAS

Table with 2 columns: Rates, Fringes. Shows rates for Bricklayer, Stonemason at \$29.48 and 12.62.

Table with 2 columns: Rates, Fringes. Shows rates for BRICKLAYER at \$30.24 and 15.21.

PORTAGE & SUMMIT

http://www.wdol.gov/wdol/scaffiles/davisbacon/OH2.dvb?v=21

9/22/2016

	Rates	Fringes
MASON - STONE.....	\$ 29.48	12.62

BROH0008-001 06/01/2015		

COLUMBIANA (Salem, Perry, Fairfield, Center, Elk Run, Middleton, & Unity Townships and the city of New Waterford), MAHONING & TRUMBULL

	Rates	Fringes
BRICKLAYER.....	\$ 27.15	18.19

BROH0009-002 06/01/2015		

BELMONT & MONROE COUNTIES and the Townships of Warren & Mt. Pleasant and the Village of Dillonvale in JEFFERSON COUNTY

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 29.48	12.62
Refractory.....	\$ 29.48	12.62

BROH0010-002 06/01/2015		

COLUMBIANA (St. Clair, Madison, Wayne, Franklin, Washington, Yellow Creek & Liverpool Townships) & JEFFERSON (Brush Creek & Saline Townships)

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 29.48	12.62

BROH0014-002 06/01/2015		

HARRISON & JEFFERSON (Except Mt. Pleasant, Warren, Brush Creek, Saline & Salineville Townships & the Village of Dillonvale)

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 29.48	12.62

BROH0016-002 05/01/2015		

ASHTABULA, GEauga, and LAKE COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 32.03	14.9

BROH0018-002 06/01/2015		

BROWN, BUTLER, CLERMONT, HAMILTON, PREBLE (Gaspar, Dixon, Israel, Lanier, Somers & Gratis Townships) & WARREN COUNTIES:

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 29.48	12.62

BROH0022-004 06/01/2015		

<http://www.wdol.gov/wdol/scaffiles/davisbacon/OH2.dvb?v=21>

9/22/2016

FAYETTE, JACKSON, PIKE, ROSS and VINTON COUNTIES		
	Rates	Fringes
Bricklayer, Stonemason.....	\$ 30.11	13.75

BROH0046-002 06/01/2015		

ERIE, HANCOCK, HURON, OTTAWA, SANDUSKY, SENECA, WOOD (Perry & Bloom Townships) and WYANDOT (Tymochtee, Crawford, Ridge & Richland Townships) COUNTIES & the Islands of Lake Erie north of Sandusky

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 29.60	16.88

BROH0052-001 06/01/2015		

FOOTNOTE: Layout Man and Sawman rate: \$1.00 per hour above journeyman rate.
Free standing stack work ground level to top of stack;
Sandblasting and laying of carbon masonry material in swing stage and/or scaffold; Ramming and spading of plastics and gunniting: \$1.50 per hour above journeyman rate.
"Hot" work: \$2.50 above journeyman rate.

ATHENS COUNTY		
	Rates	Fringes
Bricklayer, Stonemason.....	\$ 29.48	12.62

BROH0052-003 06/01/2015		

NOBLE (Brookfield, Noble, Center, Sharon, Olive, Enoch, Stock, Jackson, Jefferson & Elk Townships) and WASHINGTON COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 28.10	15.80

BROH0055-003 06/01/2015		

DELAWARE, FRANKLIN, MADISON, PICKAWAY and UNION COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 28.12	15.74

CARP0003-004 05/01/2014		

MAHONING & TRUMBULL		
	Rates	Fringes
CARPENTER.....	\$ 25.61	15.10

CARP0069-003 05/01/2014		

<http://www.wdol.gov/wdol/scaffiles/davisbacon/OH2.dvb?v=21>

9/22/2016

CHAMPAIGN, CLARK, CLINTON, DARKE, GREENE, HIGHLAND, LOGAN, MIAMI, MONTGOMERY, PREBLE (Jackson, Monroe, Harrison, Twin, Jefferson & Washington Townships) and SHELBY COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 29.48	12.62

BROH0032-001 06/01/2015		

GALLIA & MEIGS

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 29.48	12.62

BROH0035-002 06/01/2015		

ALLEN, AUGLAIZE, MERCER and VAN WERT COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 29.48	12.62

BROH0039-002 06/01/2015		

ADAMS & SCIOTO

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 30.00	18.60

BROH0040-003 06/01/2015		

ASHLAND, CRAWFORD, HARDIN, HOLMES, MARION, MORROW, RICHLAND, WAYNE and WYANDOT (Except Crawford, Ridge, Richland & Tymochtee Townships) COUNTIES

	Rates	Fringes
Bricklayer, Stonemason.....	\$ 29.09	17.18

BROH0044-002 06/01/2015		

FOOTNOTE: Layout Man and Sawman rate: \$1.00 per hour above journeyman rate.
Free standing stack work ground level to top of stack;
Sandblasting and laying of carbon masonry material in swing stage and/or scaffold; Ramming and spading of plastics and gunniting: \$1.50 per hour above journeyman rate.
"Hot" work: \$2.50 above journeyman rate.

	Rates	Fringes
Bricklayer, Stonemason COSHOCOTON, FAIRFIELD, GUERNSEY, HOCKING, KNOX, KICKING, MORGAN, MUSKINGUM, NOBLE (Beaver, Buffalo, Seneca & Wayne Townships) & PERRY COUNTIES:.....	\$ 29.48	12.62

BROH0044-002 06/01/2015		

<http://www.wdol.gov/wdol/scaffiles/davisbacon/OH2.dvb?v=21>

9/22/2016

CARROLL, STARK, TUSCARAWAS & WAYNE		
	Rates	Fringes
CARPENTER.....	\$ 25.50	13.67

CARP0069-006 05/01/2014		

COSHOCOTON, HOLMES, KNOX & MORROW		
	Rates	Fringes
CARPENTER.....	\$ 23.66	13.05

CARP0171-002 05/01/2014		

BELMONT, COLUMBIANA, HARRISON, JEFFERSON & MONROE		
	Rates	Fringes
CARPENTER.....	\$ 26.02	15.49

CARP0200-002 05/01/2016		

ADAMS, ATHENS, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GALLIA, GUERNSEY, HIGHLAND, HOCKING, JACKSON, LAWRENCE, LICKING, MADISON, MARION, MEIGS, MORGAN, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE, ROSS, SCIOTO, UNION, VINTON and WASHINGTON COUNTIES

	Rates	Fringes
CARPENTER.....	\$ 28.70	15.39
Diver.....	\$ 39.41	10.40
FILDRIVERMAN.....	\$ 28.70	15.39

CARP0248-005 07/01/2008		

LUCAS & WOOD		
	Rates	Fringes
CARPENTER.....	\$ 27.27	14.58

CARP0248-008 07/01/2008		

	Rates	Fringes
CARPENTER DEFIANCE, FULTON, HANCOCK, HENRY, PAULDING & WILLIAMS COUNTIES.....	\$ 23.71	13.28

CARP0254-002 05/01/2014		

ASHTABULA, CUYAHOGA, GEauga & LAKE		
	Rates	Fringes
CARPENTER.....	\$ 31.61	14.46

CARP0372-002 07/01/2008		

ALLEN, AUGLAIZE, HARDIN, MERCER, PUTNAM & VAN WERT

<http://www.wdol.gov/wdol/scaffiles/davisbacon/OH2.dvb?v=21>

9/22/2016

	Rates	Fringes
CARPENTER.....	\$ 23.18	13.28

CARP0639-003 05/01/2014		
MEDINA, PORTAGE & SUMMIT		
	Rates	Fringes
CARPENTER.....	\$ 29.59	14.64

CARPO735-002 05/01/2014		
ASHLAND, ERIE, HURON, LORAIN & RICHLAND		
	Rates	Fringes
CARPENTER.....	\$ 24.80	13.29

CARP1311-001 05/01/2014		
BROWN, BUTLER, CHAMPAIGN, CLARK, CLERMONT, CLINTON, DARKE, GREENE, HAMILTON, LOGAN, MIAMI, MONTGOMERY, PREBLE, SHELBY & WARREN		
	Rates	Fringes
Carpenter & Piledrivermen.....	\$ 27.39	14.33
Diver.....	\$ 40.58	9.69

CARP1393-002 07/01/2008		
CRAWFORD, DEFIANCE, FULTON, HANCOCK, HENRY, LUCAS, OTTAWA, PAULDING, SANDUSKY, SENECA, WILLIAMS & WOOD		
	Rates	Fringes
Piledrivermen & Diver's Tender...	\$ 27.30	16.05

DIVERS - \$250.00 per day		
CARP1393-003 07/01/2008		
ALLEN, AUGLAIZE, HARDIN, MERCER, PUTNAM, VAN WERT & WYANDOT		
	Rates	Fringes
Piledrivermen & Diver's Tender...	\$ 25.15	15.92

DIVERS - \$250.00 per day		
CARP1871-006 06/01/2013		
BELMONT, HARRISON, & MONROE		
	Rates	Fringes
Diver, Wet.....	\$ 47.07	13.92
Piledrivermen; Diver, Dry.....	\$ 31.38	13.92

CARP1871-008 06/01/2013		
ASHLAND, ASHTABULA, CUYAHOGA, ERIE, GEAUGA, HURON, LAKE,		

http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21

9/22/2016

	Rates	Fringes
ELECTRICIAN.....	\$ 28.32	15.18

ELEC0032-004 06/01/1998		
ALLEN, HARDIN, VAN WERT & WYANDOT (Crawford, Jackson, Marseilles, Mifflin, Richland, Ridge & Salem Townships)		
	Rates	Fringes
Line Construction		
Equipment Operator.....	\$ 20.27	4.12+a
Groundman Truck Driver.....	\$ 14.43	3.63+a
Lineman.....	\$ 22.52	4.31+a

FOOTNOTE: a. Half day's Paid Holiday: The last 4 hours of the workday prior to Christmas or New Year's Day		

ELEC0038-002 04/25/2016		
CUYAHOGA, GEAUGA (Bainbridge, Chester & Russell Townships) & LORAIN (Columbia Township)		
	Rates	Fringes
ELECTRICIAN		
Excluding Sound & Communications Work.....	\$ 37.13	20.38

FOOTNOTES:		
a. 6 Paid Holidays: New Year's Day; Memorial Day; July 4th; Labor Day; Thanksgiving Day; & Christmas Day		
b. 1 week's paid vacation for 1 year's service; 2 weeks' paid vacation for 2 or more years' service		

ELEC0038-008 04/25/2016		
CUYAHOGA, GEAUGA (Bainbridge, Chester & Russell Townships) & LORAIN (Columbia Township)		
	Rates	Fringes
Sound & Communication Technician		
Communications Technician...	\$ 26.05	10.90+a+b
Installer Technician.....	\$ 24.80	10.86+a+b

FOOTNOTES;		
a. 6 Paid Holidays: New Year's Day; Memorial Day; July 4th; Labor Day; Thanksgiving Day; & Christmas Day		
b. 1 week's paid vacation for 1 year's service; 2 weeks' paid vacation for 2 or more years' service		

ELEC0064-003 11/30/2015		
COLUMBIANA (Butler, Fairfield, Perry, Salem & Unity Townships)		

http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21

9/22/2016

	Rates	Fringes
Diver, Wet.....	\$ 44.22	15.49
Piledrivermen; Diver, Dry.....	\$ 29.48	15.49

CARP1871-014 06/01/2013		
CARROLL, STARK, TUSCARAWAS & WAYNE		
	Rates	Fringes
Diver, Wet.....	\$ 37.40	13.81
Piledrivermen; Diver, Dry.....	\$ 24.93	13.81

CARP1871-015 06/01/2013		
COSHOCOTON, HOLMES, KNOX & MORROW		
	Rates	Fringes
Diver, Wet.....	\$ 36.53	12.96
Piledrivermen; Diver, Dry.....	\$ 24.35	12.96

CARP1871-017 06/01/2013		
MAHONING & TRUMBULL		
	Rates	Fringes
Diver, Wet.....	\$ 39.44	14.16
Piledrivermen; Diver, Dry.....	\$ 26.29	14.16

CARP2235-012 01/01/2014		
COLUMBIANA & JEFFERSON		
	Rates	Fringes
PILEDRIVERMAN.....	\$ 31.74	16.41

CARP2239-001 07/01/2008		
CRAWFORD, OTTAWA, SANDUSKY, SENECA & WYANDOT		
	Rates	Fringes
CARPENTER.....	\$ 23.71	13.28

ELEC0008-002 05/25/2015		
DEFIANCE, FULTON, HANCOCK, HENRY, LUCAS, OTTAWA, PAULDING, PUTNAM, SANDUSKY, SENECA, WILLIAMS & WOOD		
	Rates	Fringes
CABLE SPLICER.....	\$ 38.98	18.96
ELECTRICIAN.....	\$ 37.12	4.5%+18.04

ELEC0032-003 06/01/2014		
ALLEN, AUGLAIZE, HARDIN, LOGAN, MERCER, SHELBY, VAN WERT & WYANDOT (Crawford, Jackson, Marseilles, Mifflin, Ridgeland,		

http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21

9/22/2016

	Rates	Fringes
ELECTRICIAN.....	\$ 32.02	13.74

ELEC0071-001 12/28/2015		
ASHLAND, CHAMPAIGN, CLARK, COSHOCTON, CRAWFORD, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GUERNSEY, HIGHLAND, HOCKING, JACKSON (Coal, Jackson, Liberty, Milton, Washington & Wellston Townships), KNOX, LICKING, MADISON, MARION, MONROE, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE (Beaver, Benton, Jackson, Mifflin, Pebble, Peepes, Perry & Seal Townships), RICHLAND, ROSS, TUSCARAWAS (Auburn, Bucks, Clay, Jefferson, Oxford, Perry, Salem, Rush, Washington & York Townships), UNION, VINTON (Clinton, Eagle, Elk, Harrison, Jackson, Richland & Swan Townships), and WASHINGTON COUNTIES		
	Rates	Fringes
Line Construction		
Equipment Operators.....	\$ 32.24	12.34
Groundmen.....	\$ 23.28	10.37
Linemen & Cable Splicers....	\$ 35.82	13.13

ELEC0071-004 12/28/2015		
AUGLAIZE, CLINTON, DARKE, GREENE, LOGAN, MERCER, MIAMI, MONTGOMERY, PREBLE, and SHELBY COUNTIES		
	Rates	Fringes
Line Construction		
Equipment Operator.....	\$ 32.24	12.34
Groundman.....	\$ 23.28	10.37
Linemen & Cable Splicers....	\$ 35.82	13.13

ELEC0071-005 12/29/2015		
ASHTABULA, CUYAHOGA, GEAUGA, LAKE & LORAIN		
	Rates	Fringes
LINE CONSTRUCTION: Equipment Operator		
DOT/Traffic Signal & Highway Lighting Projects...	\$ 31.30	13.07
Municipal Power/Transit Projects.....	\$ 37.34	14.58

LINE CONSTRUCTION: Groundman		
DOT/Traffic Signal & Highway Lighting Projects...	\$ 24.34	11.33
Municipal Power/Transit Projects.....	\$ 29.05	12.51

LINE CONSTRUCTION: Linemen/Cable Splicer		
DOT/Traffic Signal & Highway Lighting Projects...	\$ 34.78	13.94
Municipal Power/Transit		

http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21

9/22/2016

Projects.....\$ 41.49 15.61

ELEC0071-008 12/28/2015

COLUMBIANA, MAHONING, and TRUMBULL COUNTIES

Table with 2 columns: Rates, Fringes. Rows include Line Construction, Equipment Operator, Groundman, Lineman & Cable Splicers.

ELEC0071-010 12/28/2015

BELMONT, CARROLL, HARRISON, HOLMES, JEFFERSON, MEDINA, PORTAGE, STARK, SUMMIT, and WAYNE COUNTIES

Table with 2 columns: Rates, Fringes. Rows include Line Construction, Equipment Operator, Groundman, Lineman & Cable Splicers.

ELEC0071-013 12/28/2015

BROWN, BUTLER, CLERMONT, HAMILTON, and WARREN COUNTIES

Table with 2 columns: Rates, Fringes. Rows include Line Construction, Equipment Operator, Groundman, Lineman & Cable Splicers.

ELEC0071-014 12/28/2015

ADAMS, ATHENS, GALLIA, JACKSON (Bloomfield, Franklin, Hamilton, Lick, Jefferson, Scioto & Madison Townships), LAWRENCE, MEIGS, PIKE (Camp Creek, Marion, Newton, Scioto, Sunfish & Union Townships), SCIOTO & VINTON (Brown, Knox, Madison, Vinton & Wilkesville Townships)

Table with 2 columns: Rates, Fringes. Rows include Line Construction, Equipment Operator, Groundman, Lineman & Cable Splicers.

ELEC0082-002 11/30/2015

CLINTON, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE & WARREN (Wayne, Clear Creek & Franklin Townships)

Table with 2 columns: Rates, Fringes. Row: ELECTRICIAN.....\$ 28.60 17.60

ELEC0082-006 11/30/2015

CLINTON, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE & WARREN

http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21

9/22/2016

Table with 2 columns: Rates, Fringes. Rows include Cable Splicer, Groundman/Truck Driver, Heli-arc Welding, Lineman, Operator - Class 1, Operator - Class 2, Traffic Signal & Lighting Technician.

FOOTNOTE: a. 6 Observed Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; & Christmas Day. Employees who work on a holiday shall be paid at a rate of double their applicable classified straight-time rates for the work performed on such holiday.

ELEC0245-004 08/31/2015

ERIE COUNTY

Table with 2 columns: Rates, Fringes. Rows include Line Construction, Cable Splicer, Groundman/Truck Driver, Lineman, Operator - Class 1, Operator - Class 2.

FOOTNOTE: a. 6 Observed Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; & Christmas Day. Employees who work on a holiday shall be paid at a rate of double their applicable classified straight-time rates for the work performed on such holiday.

ELEC0246-006 10/29/2012

Table with 2 columns: Rates, Fringes. Row: ELECTRICIAN.....\$ 33.00 26.16

ELEC0306-005 05/30/2016

MEDINA (Brunswick, Chatham, Granger, Guilford, Harrieville, Hinckley, Homer, Lafayette, Medina, Montville, Sharon, Spencer, Wadsworth, Westfield & York Townships), PORTAGE (Atwater, Aurora, Brimfield, Deerfield, Franklin, Mantua, Randolph, Ravenna, Rootstown, Shalersville, Streetsboro & Suffield Townships), SUMMIT & WAYNE (Baughman, Canaan, Chester, Chippewa, Congress, Green, Milton, & Wayne Townships)

Table with 2 columns: Rates, Fringes. Rows include CABLE SPLICER, ELECTRICIAN.

ELEC0317-002 05/28/2014

GALLIA & LAWRENCE

Table with 2 columns: Rates, Fringes. Rows include CABLE SPLICER, ELECTRICIAN.

http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21

9/22/2016

(Wayne, Clear Creek & Franklin Townships)

Rates Fringes

Sound & Communication Technician

Table with 2 columns: Rates, Fringes. Rows include Cable Puller, Installer/Technician.

ELEC0129-003 02/29/2016

LORAIN (Except Columbia Township) & MEDINA (Litchfield & Liverpool Townships)

Rates Fringes

ELECTRICIAN.....\$ 32.35 16.24

ELEC0129-004 02/29/2016

ERIE & HURON (Lyme, Ridgefield, Norwalk, Townsend, Wakeman, Sherman, Peru, Bronson, Hartland, Clarksfield, Norwich, Greenfield, Fairfield, Fitchville & New London Townships)

Rates Fringes

ELECTRICIAN.....\$ 32.35 16.24

ELEC0141-003 09/01/2015

BELMONT COUNTY

Rates Fringes

CABLE SPLICER.....\$ 32.25 23.67

ELECTRICIAN.....\$ 28.80 23.06

ELEC0212-003 06/06/2016

BROWN, CLERMONT & HAMILTON

Rates Fringes

Sound & Communication Technician.....\$ 27.47 17.78

ELEC0212-005 06/06/2016

BROWN, CLERMONT, and HAMILTON COUNTIES

Rates Fringes

ELECTRICIAN.....\$ 27.47 17.78

ELEC0245-003 08/31/2015

DEFIANCE, FULTON, HANCOCK, HENRY, HURON, LUCAS, OTTAWA, FAULDING, PUTNAM, SANDUSKY, SENECA, WILLIAMS, and WOOD COUNTIES

Rates Fringes

Line Construction

http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21

9/22/2016

ELEC0540-003 06/05/1997

TUSCARAWAS COUNTY (North of Auburn, Clay, Rush & York Townships)

Rates Fringes

Line Construction

Groundman & Truck Driver...\$ 14.65 8.18

Line Equipment Operator....\$ 19.02 8.69

Lineman & Cable Splicer....\$ 21.86 9.01

ELEC0540-005 12/28/2015

CARROLL (Northern half, including Fox, Harrison, Rose & Washington Townships), COLUMBIANA (Knox Township), HOLMES, MAHONING (Smith Township), STARK, TUSCARAWAS (North of Auburn, Clay, Rush & York Townships), and WAYNE (South of Baughman, Chester, Green & Wayne Townships) COUNTIES

Rates Fringes

ELECTRICIAN.....\$ 30.04 21.78

ELEC0573-003 06/01/2015

ASHTABULA (Colebrook, Wayne, Williamsfield, Orwell & Windsor Townships), GEauga (Auburn, Middlefield, Parkman & Troy Townships), MAHONING (Milton Township), PORTAGE (Charlestown, Edinburg, Freedom, Hiram, Nelson, Palmyra, Paris & Windham Townships), and TRUMBULL (Except Liberty & Hubbard Townships)

Rates Fringes

ELECTRICIAN.....\$ 30.57 16.85

ELEC0575-001 05/30/2016

ADAMS, FAYETTE, HIGHLAND, HOCKING, JACKSON (Bloomfield, Franklin, Hamilton, Jefferson, Lick, Madison, Scioto, Coal, Jackson, Liberty, Milton & Washington Townships), PICKAWAY (Deer Creek, Perry, Pickaway, Salt Creek & Wayne Townships), PIKE (Beaver, Benton, Jackson, Mifflin, Pebble, PeePee, Perry, Seal, Camp Creek, Newton, Scioto, Sunfish, Union & Marion Townships), ROSS, SCIOTO & VINTON (Clinton, Eagle, Elk, Harrison, Jackson, Richland & Swan Townships)

Rates Fringes

ELECTRICIAN.....\$ 31.85 14.02

ELEC0648-001 08/31/2015

BUTLER and WARREN COUNTIES (Deerfield, Hamilton, Harlan, Massie, Salem, Turtle Creek, Union & Washington Townships)

Rates Fringes

CABLE SPLICER.....\$ 29.39 17.17

ELECTRICIAN.....\$ 28.89 17.15

ELEC0673-004 06/01/2015

http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21

9/22/2016

ASHTABULA (Excluding Orwell, Colebrook, Williamsfield, Wayne & Windsor Townships), GEauga (Burton, Chardon, Claridon, Hamden, Huntsburg, Montville, Munson, Newbury & Thompson Townships) and LAKE COUNTIES

Table with 2 columns: Rates, Fringes. Rows include CABLE SPLICER, ELECTRICIAN, and ELEC0683-002 05/30/2016.

CHAMPAIGN, CLARK, DELAWARE, FAIRFIELD, FRANKLIN, MADISON, PICKAWAY (Circleville, Darby, Harrison, Jackson, Madison, Monroe, Muhlenberg, Scioto, Walnut & Washington Townships), and UNION COUNTIES

Table with 2 columns: Rates, Fringes. Rows include CABLE SPLICER, ELECTRICIAN, and ELEC0688-003 05/30/2016.

ASHLAND, CRAWFORD, HURON (Richmond, New Haven, Ripley & Greenwich Townships), KNOX (Liberty, Clinton, Union, Howard, Monroe, Middleberry, Morris, Wayne, Berlin, Pike, Brown & Jefferson Townships), MARION, MORROW, RICHLAND and WYANDOT (Sycamore, Crane, Eden, Pitt, Antrim & Tycocottee Townships) COUNTIES

Table with 2 columns: Rates, Fringes. Rows include ELECTRICIAN and ELEC0972-002 06/01/2015.

ATHENS, MEIGS, MONROE, MORGAN, NOBLE, VINTON (Brown, Knox, Madison, Vinton & Wilkesville Townships), and WASHINGTON COUNTIES

Table with 2 columns: Rates, Fringes. Rows include CABLE SPLICER, ELECTRICIAN, and ELEC1105-001 12/28/2015.

COSHOCTON, GUERNSEY, KNOX (Jackson, Clay, Morgan, Miller, Milford, Hilliar, Butler, Harrison, Pleasant & College Townships), LICKING, MUSKINGUM, PERRY, and TUSCARAWAS (Auburn, York, Clay, Jefferson, Rush, Oxford, Washington, Salem, Perry & Bucks Townships) COUNTIES

Table with 2 columns: Rates, Fringes. Rows include ELECTRICIAN and ENGI0018-003 06/01/2016.

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9/22/2016

Pump (4" & over discharge); Roller, Asphalt; Rotovator (lime soil stabilizer); Switch & Tie Tampers (without lifting & aligning device); Utility Operator (Small equipment); Welding Machines; and Railroad Tie Inserter/Remover; Articulating/straight bed end dumps if assigned (minus \$4.00 per hour).

GROUP 4 - Backfiller; Ballast Re-locator; Bars, Joint & Mesh Installing Machine; Batch Plant; Boring Machine Operator (48" or less); Bull Floats; Burlap & Curing Machine; Concrete Plant (capacity 4 yd. & under); Concrete Saw (Multiple); Conveyor (Highway); Crusher; Deckhand; Farm-type Tractor with attachments (highway); Finishing Machine; Fireperson, Floating Equipment (all types); Forklift; Form Trencher; Hydro Hammer expect masonry; Hydro Seeder; Pavement Breaker; Plant Mixer; Post Driver; Post Hole Digger (Power Auger); Power Brush Burner; Power Form Handling Equipment; Road Widening Trencher; Roller (Brick, Grade & Macadam); Self-Propelled Power Spreader; Self-Propelled Power Subgrader; Steam Fireperson; Tractor (Pulling Sheepfoot, Roller or Grader); and Vibratory Compactor with Integral Power.

GROUP 5 - Compressor (Portable, Sewer, Heavy & Highway); Drum Fireperson (Asphalt Plant); Generator; Masonry Fork Lift; Inboard-Outboard Motor Boat Launch; Oil Heater (asphalt plant); Oiler/Helper; Power Driver Heater; Power Sweeper & Scrubber; Pump (under 4" discharge); Signalperson; Tire Repairperson; VAC/ALLS; Cranes - Compact, track or rubber under 4,000 pound capacity; fueling and greasing; and Chainmen.

GROUP 6 - Master Mechanic & Boom from 150 to 180.

GROUP 7 - Boom from 180 and over.

ENGI0018-004 06/01/2016

ADAMS, ALLEN, ASHLAND, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAWRENCE, LICKING, LOGAN, LUCAS, MADISON, MARION, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WOOD, and YANDOT COUNTIES

Table with 2 columns: Rates, Fringes. Rows include POWER EQUIPMENT OPERATOR (GROUP 1-7) and OPERATING ENGINEER CLASSIFICATIONS.

http://www.wdol.gov/wdol/scaffiles/davisbacon/OH2.dvb?v=21

9/22/2016

ASHTABULA, CUYAHOGA, ERIE, GEauga, LAKE, LORAIN, MEDINA, PORTAGE, and SUMMIT COUNTIES

Table with 2 columns: Rates, Fringes. Rows include POWER EQUIPMENT OPERATOR (GROUP 1-7).

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Air Compressor on Steel Erection; Barrier Moving Machine; Boiler Operator on Compressor or Generator when mounted on a Rig; Cableway; Combination Concrete Mixer & Tower; Concrete Plant (over 4 yd. Capacity); Concrete Pump; Crane (All Types, Including Boom Truck, Cherry Picker); Crane-Compact, Track or Rubber over 4,000 lbs. capacity; Cranes-Self Erecting, Stationary, Track or Truck (All Configurations); Derrick; Dragline; Dredge (Dipper, Clam or Suction); Elevating Grader or Euclid Loader; Floating Equipment (All Types); Gradall; Helicopter Crew (Operator-Hoist or Winch); Hoe (all types); Hoisting Engine on Shaft or Tunnel Work; Hydraulic Gantry (Lifting System); Industrial-Type Tractor; Jet Engine Dryer (D8 or D9) Diesel Tractor; Locomotive (Standard Gauge); Maintenance Operator Class A; Mixer, Paving (Single or Double Drum); Mucking Machine; Multiple Scraper; Piledriving Machine (All Types); Power Shovel; Prentice Loader; Quad 9 (Double Pusher); Rail Tamper (with auto lifting & aligning device); Refrigerating Machine (Freezer Operation); Rotary Drill, on Caisson work; Rough Terrain Fork Lift with Winch/Hoist; Side-Boom; Slip-Form Paver; Tower Derrick; Tree Shredder; Trench Machine (Over 24" wide); Truck Mounted Concrete Pump; Tug Boat; Tunnel Machine and/or Mining Machine; Wheel Excavator; and Asphalt Plant Engineer (Cleveland District Only).

GROUP 2 - Asphalt Paver; Automatic Subgrader Machine, Self-Propelled (CMI Type); Bobcat Type and/or Skid Steer Loader with Hoe Attachment Greater than 7,000 lbs.; Boring Machine More than 48"; Bulldozer; Endloader; Horizontal Directional Drill (Over 50,000 ft lbs thrust); Hydro Milling Machine; Kolman-type Loader (production type-Dirt); Lead Greaseman; Lighting & Traffic Signal Installation Equipment (includes all groups or classifications); Material Transfer Equipment (Shuttle Buggy) Asphalt; Pettibone-Rail Equipment; Power Grader; Power Scraper; Push Cat; Rotomill (all), Grinders & Planers of All types; Trench Machine (24" wide & under); Vermeer type Concrete Saw; and Maintenance Operators (Portage and Summit Counties Only).

GROUP 3 - A-Frame; Air Compressor on Tunnel Work (low pressure); Asphalt Plant Engineer (Portage and Summit Counties Only); Bobcat-type and/or Skid Steer Loader with or without Attachments; Highway Drills (all types); Locomotive (narrow gauge); Material Hoist/Elevator; Mixer, Concrete (more than one bag capacity); Mixer, one bag capacity (Side Loader); Power Boiler (Over 15 lbs. Pressure) Pump Operator installing & operating Well Points;

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GROUP 1 - Air Compressor on Steel Erection; Barrier Moving Machine; Boiler Operator on Compressor or Generator when mounted on a Rig; Cableway; Combination Concrete Mixer & Tower; Concrete Plant (over 4 yd. Capacity); Concrete Pump; Crane (All Types, Including Boom Truck, Cherry Picker); Crane-Compact, Track or Rubber over 4,000 lbs. capacity; Cranes-Self Erecting, Stationary, Track or Truck (All Configurations); Derrick; Dragline; Dredge (Dipper, Clam or Suction); Elevating Grader or Euclid Loader; Floating Equipment (All Types); Gradall; Helicopter Crew (Operator-Hoist or Winch); Hoe (all types); Hoisting Engine on Shaft or Tunnel Work; Hydraulic Gantry (Lifting System); Industrial-Type Tractor; Jet Engine Dryer (D8 or D9) Diesel Tractor; Locomotive (Standard Gauge); Maintenance Operator Class A; Mixer, Paving (Single or Double Drum); Mucking Machine; Multiple Scraper; Piledriving Machine (All Types); Power Shovel; Prentice Loader; Quad 9 (Double Pusher); Rail Tamper (with auto lifting & aligning device); Refrigerating Machine (Freezer Operation); Rotary Drill, on Caisson work; Rough Terrain Fork Lift with Winch/Hoist; Side-Boom; Slip-Form Paver; Tower Derrick; Tree Shredder; Trench Machine (Over 24" wide); Truck Mounted Concrete Pump; Tug Boat; Tunnel Machine and/or Mining Machine; and Wheel Excavator.

GROUP 2 - Asphalt Paver; Automatic Subgrader Machine, Self-Propelled (CMI Type); Bobcat Type and/or Skid Steer Loader with Hoe Attachment Greater than 7,000 lbs.; Boring Machine More than 48"; Bulldozer; Endloader; Hydro Milling Machine; Horizontal Directional Drill (over 50,000 ft. lbs. thrust); Kolman-type Loader (production type-Dirt); Lead Greaseman; Lighting & Traffic Signal Installation Equipment (includes all groups or classifications); Material Transfer Equipment (Shuttle Buggy) Asphalt; Pettibone-Rail Equipment; Power Grader; Power Scraper; Push Cat; Rotomill (all), Grinders & Planers of All types; Trench Machine (24" wide & under); and Vermeer type Concrete Saw.

GROUP 3 - A-Frame; Air Compressor on Tunnel Work (low pressure); Asphalt Plant Engineer; Bobcat-type and/or Skid Steer Loader with or without Attachments; Highway Drills (all types); Locomotive (narrow gauge); Material Hoist/Elevator; Mixer, Concrete (more than one bag capacity); Mixer, one bag capacity (Side Loader); Power Boiler (Over 15 lbs. Pressure) Pump Operator installing & operating Well Points; Pump (4" & over discharge); Railroad Tie Inserter/Remover; Roller, Asphalt; Rotovator (lime soil stabilizer); Switch & Tie Tampers (without lifting & aligning device); Utility Operator (Small equipment); and Welding Machines; Articulating/straight bed end dumps if assigned (minus \$4.00 per hour).

GROUP 4 - Backfiller; Ballast Re-locator; Bars, Joint & Mesh Installing Machine; Batch Plant; Boring Machine Operator (48" or less); Bull Floats; Burlap & Curing Machine; Concrete Plant (capacity 4 yd. & under); Concrete Saw (Multiple); Conveyor (Highway); Crusher; Deckhand; Farm-type Tractor with attachments (highway); Finishing Machine; Fireperson, Floating Equipment (all types); Fork Lift; Form Trencher; Hydro Hammer expect masonry; Hydro Seeder; Pavement Breaker; Plant Mixer; Post Driver; Post Hole Digger (Power Auger); Power Brush Burner; Power Form Handling Equipment; Road Widening Trencher; Roller (Brick, Grade & Macadam); Self-Propelled Power Spreader; Self-Propelled Power Subgrader; Steam Fireperson; Tractor (Pulling Sheepfoot, Roller or Grader); and Vibratory

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Compactor with Integral Power.

GROUP 5 - Compressor (Portable, Sewer, Heavy & Highway); Drum Fireperson (Asphalt Plant); Generator; Masonry Forklift; Inboard-Outboard Motor Boat Launch; Oil Heater (asphalt plant); Oiler/Helper; Power Driven Heater; Power Sweeper & Scrubber; Pump (under 4" discharge); Signalperson; Tire Repairperson; VAC/ALLS; Cranes - Compact, track or rubber under 4,000 pound capacity; fueling and greasing; and Chaimmen.

GROUP 6 - Master Mechanic & Boom from 150 to 180.

GROUP 7 - Boom from 180 and over.

ENGI0066-023 06/01/2014

COLUMBIANA, MAHONING & TRUMBULL COUNTIES

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
ASBESTOS; HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 1 - A & B.....	\$ 37.55	17.51
ASBESTOS; HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 2 - A & B.....	\$ 37.22	17.51
ASBESTOS; HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 3 - A & B.....	\$ 33.49	17.51
ASBESTOS; HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 4 - A & B.....	\$ 29.54	17.51
ASBESTOS; HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 5 - A & B.....	\$ 26.15	17.51
HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 1 - C & D.....	\$ 34.42	17.51
HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 2 - C & D.....	\$ 34.12	17.51
HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 3 - C & D.....	\$ 30.70	17.51
HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 4 - C & D.....	\$ 27.08	17.51
HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 5 - C & D.....	\$ 23.97	17.51
ALL OTHER WORK		
GROUP 1.....	\$ 31.29	17.51

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Plant; Road Widener; Roller; Sasgen Derrick; Seeding Machine; Soil Stabilizer (Pump type); Spray Cure Machine, Self-Propelled; Straw Blower Machine; Sub-Grader; Tube Finisher or Broom C.M.I. or similar type; & Tugger Hoist

GROUP 4 - Air Curtain Destructor & Similar Type; Batch Plant-Job Related; Boiler Operator; Compressor; Conveyor; Curb Builder, self-propelled; Drill Wagon; Generator Set; Generator-Steam; Heater-Portable Power; Hydraulic Manipulator Crane; Jack-Hydraulic Power driven; Jack-Hydraulic (Railroad); Ladavator; Minor Machine Operator; Mixer-Concrete; Mulching Machine; Pin Puller; Power Broom; Pulverizer; Pump; Road Finishing Machine (Pull Type); Saw-Concrete-Self-Propelled (Highway Work); Signal Person; Spray Cure Machine-Motor Powered; Stump Cutter; Tractor; Trencher Form; Water Blaster; Steam Jenny; Syphon; Vibrator-Gasoline; & Welding Machine

GROUP 5 - Brakeperson; Fireperson; & Oiler

IRON0017-002 05/01/2016

ASHTABULA (North of Route 6, starting at the Geauga County Line, proceeding east to State Route 45), CUYAHOGA, ERIE (Eastern 2/3), GEAUGA, HURON (East of a line drawn from the north border through Monroeville & Willard), LAKE, LORAIN, MEDINA (North of Old Rte. #224), PORTAGE (West of a line from Middlefield to Shalersville to Deerfield), and SUMMIT (North of Old Rte. #224, including city limits of Barberton) COUNTIES

	Rates	Fringes
IRONWORKER		
Ornamental, Reinforcing, & Structural.....	\$ 33.33	20.55

IRON0017-010 05/01/2016

ASHTABULA (Eastern part from Lake Erie on the north to route #322 on the south to include Conneaut, Kingsville, Sheffield, Denmark, Dorset, Cherry Valley, Wayne, Monroe, Pierpont, Richmond, Andover & Williamsfield Townships)

	Rates	Fringes
IRONWORKER		
Structural, including metal building erection & Reinforcing.....	\$ 33.33	20.55

IRON0044-002 06/01/2016

CLINTON (South of a line drawn from Blanchester to Lynchburg), HAMILTON, HIGHLAND (Excluding eastern one-fifth & portion of county inside lines drawn from Marshall to Lynchburg from the northern county line through E. Monroe to Marshall) & WARREN (South of a line drawn from Blanchester through Morrow to the west county line)

	Rates	Fringes
IRONWORKER		

http://www.wdol.gov/wdol/scaffiles/davisbacon/OH2.dvb?v=21

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ALL OTHER WORK

GROUP 2.....	\$ 31.02	17.51
ALL OTHER WORK		
GROUP 3.....	\$ 27.91	17.51
ALL OTHER WORK		
GROUP 4.....	\$ 24.62	17.51
ALL OTHER WORK		
GROUP 5.....	\$ 21.79	17.51

GROUP 1 - Rig, File Driver or Caisson Type; & Rig, File Hydraulic Unit Attached

GROUP 2 - Asphalt Heater Planer; Backfiller with Drag Attachment; Backhoe; Backhoe with Batch Shear attached; Backhoe-Rear Pivotal Swing; Batch Plant-Central Mix Concrete; Batch Plant, Portable concrete; Berm Builder-Automatic; Boat Derrick; Boat-Tug; Boring Machine Attached to Tractor; Bullclam; Bulldozer; C.M.I. Road Builder & Similar Type; Cable Placer & Layer; Carrier-Straddle; Carryall-Scraper or Scoop; Chicago Boom; Compactor with Blade Attached; Concrete Saw (Vermeer or similar type); Concrete Spreader Finisher; Combination, Bidwell Machine; Crane; Crane-Electric Overhead; Crane-Rough Terrain; Crane-Side Boom; Crane-Truck; Crane-Tower; Derrick-Boom; Derrick-Car; Digger-Wheel (Not trencher or road widener); Double Nine; Drag Line; Dredge; Drill-Kenny or Similar Type; Easy Pour Median Barrier Machine (or similar type); Electromatic; Frankie Pile; Gradall; Grader; Gurry; Self-Propelled; Heavy Equipment Robotics Operator/Mechanic; Hoist-Monorail; Hoist-Stationary & Mobile Tractor; Hoist, 2 or 3 drum; Horizontal Directional Drill Operator; Jackall; Jumbo Machine; Kocal & Kuhlman; Land-Seagoing Vehicle; Loader, Elevating; Loader, Front End; Loader, Skid Steer; Locomotive; Mechanic/Welder; Metro Chip Harvester with Boom; Mucking Machine; Paver-Asphalt Finishing Machine; Paver-Road Concrete; Paver-Slip Form (C.M.I. or similar); Place Crete Machine with Boom; Post Driver (Carrier mounted); Power Driven Hydraulic Pump & Jack (When used in Slip Form or Lift Slab Construction); Pump Crete Machine; Regulator-Ballast; Hydraulic Power Unit not attached to Rig for Pile Drillings; Rigs-Drilling; Roto Mill or similar Full Lane (8' Wide & Over); Roto Mill or similar type (Under 8'); Shovel; Slip Form Curb Machine; Speedwing; Spikemaster; Stonecrusher; Tie Puller & Loader; Tie Tamper; Tractor-Double Boom; Tractor with Attachments; Truck-Boom; Truck-Tire; Trench Machine; Tunnel Machine (Mark 21 Java or similar); & Whirley (or similar type)

GROUP 3 - Asphalt Plant; Bending Machine (Pipeline or similar type); Boring machine, Motor Driven; Chip Harvester without Boom; Cleaning Machine, Pipeline Type; Coating Machine, Pipeline Type; Compactor; Concrete Belt Placer; Concrete Finisher; Concrete Planer or Asphalt; Concrete Spreader; Elevator; Fork Lift (Home building only); Fork lift & Lulls; Fork Lift Walk Behind (Hoisting over 1 buck high); Form Line Machine; Grease Truck operator; Grout Pump; Gunnite Machine; Horizontal Directional Drill Locator; Single Drum Hoist with or without Tower; Huck Bolting Machine; Hydraulic Scaffold (Hoisting building materials); Paving Breaker (Self-propelled or Ridden); Pipe Dream; Pot Fireperson (Power Agitated); Refrigeration

http://www.wdol.gov/wdol/scaffiles/davisbacon/OH2.dvb?v=21

9/22/2016

Fence Erector.....	\$ 25.15	20.20
Ornamental; Structural.....	\$ 26.47	20.20

IRON0055-003 07/01/2015

CRAWFORD (Area Between lines drawn from where Hwy #598 & #30 meet through N. Liberty to the northern border & from said Hwy junction point due west to the border), DEFIANCE (S. of a line drawn from where Rte. #66 meets the northern line through Independence to the eastern county border), ERIE (Western 1/3), FULTON, HANCOCK, HARDIN (North of a line drawn from Maysville to a point 4 miles south of the northern line on the eastern line), HENRY, HURON (West of a line drawn from the northern border through Monroeville & Willard), LUCAS, OTTAWA, PUTNAM (East of a line drawn from the northern border down through Miller City to where #696 meets the southern border), SANDUSKY, SENECA, WILLIAMS (East of a line drawn from Pioneer through Stryker to the southern border), WOOD & WYANDOT (North of Rte. #30)

	Rates	Fringes
IRONWORKER		
Fence Erector.....	\$ 20.00	20.13
Flat Road Mesh.....	\$ 20.75	18.00
Tunnels & Caissons Under		
Pressure.....	\$ 28.50	18.00
All Other Work.....	\$ 29.12	21.47

IRON0147-002 06/01/2015

ALLEN (Northern half), DEFIANCE (Northern part, excluding south of a line drawn from where Rte. #66 meets the northern line through Independence to the eastern county border), MERCER (Northern half), PAULDING, PUTNAM (Western part, excluding east of a line drawn from the northern border down through Miller City to where #696 meets the southern border), VAN WERT, and WILLIAMS (Western part, excluding east of a line drawn from Pioneer through Stryker to the southern border) COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 25.39	20.64

IRON0172-002 06/01/2016

CHAMPAIGN (Eastern one-third), CLARK (Eastern one-fourth), COSHOCTON (West of a line beginning at the northwestern county line going through Walhonding & Tunnel Hill to the southern county line), CRAWFORD (South of Rte. #30), DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, HARDIN (Excluding a line drawn from Roundhead to Maysville), HIGHLAND (Eastern one-fifth), HOCKING, JACKSON (Northern half), KNOX, LICKING, LOGAN (Eastern one-third), MADISON, MARION, MORROW, MUSKINGUM (West of a line starting at Adams Mill going to Adamsville & going from Adamsville through Blue Rock to the southern border), PERRY, PICKAWAY, PIKE (Northern half), ROSS, UNION, VINTON and WYANDOT (South of Rte. #30) COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 28.12	19.94

http://www.wdol.gov/wdol/scaffiles/davisbacon/OH2.dvb?v=21

9/22/2016

IRON0207-004 06/01/2015

ASHTABULA (Southern part starting at the Geauga County line), COLUMBIANA (E. of a line from Damascus to Highlandtown), MAHONING (N. of Old Route #224), PORTAGE (E. of a line from Middlefield to Shalersville to Deerfield) & TRUMBULL

Table with 2 columns: Rates, Fringes. Rows include IRONWORKER, Layout: Sheeter, Ornamental; Reinforcing; Structural.

IRON0290-002 06/01/2016

ALLEN (Southern half), AUGLAIZE, BUTLER (North of a line drawn from east to the west county line going through Oxford, Darttown & Woodsdale), CHAMPAIGN (Excluding east of a line drawn from Catawba to the point where #68 intersects the northern county line), CLARK (Western two-thirds), CLINTON (Excluding south of a line drawn from Blanchester to Lynchburg), DARKE, GREENE, HIGHLAND (Inside lines drawn from Marshall to Lynchburg & from the northern county line through East Monroe to Marshall), LOGAN (West of a line drawn from West Liberty to where the northern county line meets the western county line of Hardin), MERCER (Southern half), MIAMI, MONTGOMERY, PREBLE, SHELBY & WARREN (Excluding south of a line drawn from Blanchester through Morrow to the western county line) COUNTIES

Table with 2 columns: Rates, Fringes. Row includes IRONWORKER.

IRON0372-002 07/01/2016

ADAMS (Western Part), BROWN, BUTLER (Southern Part), CLERMONT, CLINTON (South of a line drawn from Blanchester to Lynchburg), HAMILTON, HIGHLAND (Excluding eastern one-fifth & portion of county inside lines drawn from Marshall to Lynchburg from the northern county line through E. Monroe to Marshall) and WARREN (South of a line drawn from Blanchester through Morrow to the west county line) COUNTIES

Table with 2 columns: Rates, Fringes. Rows include IRONWORKER, REINFORCING, Beyond 30-mile radius of Hamilton County Courthouse, Up to & including 30-mile radius of Hamilton County Courthouse.

IRON0549-003 12/01/2015

BELMONT, GUERNSEY, HARRISON, JEFFERSON, MONROE & MUSKINGUM (Excluding portion west of a line starting at Adams Mill going to Adamsville and going from Adamsville through Blue Rock to the south border)

Table with 2 columns: Rates, Fringes.

http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21

9/22/2016

Table with 2 columns: Rates, Fringes. Rows include GROUP 2, GROUP 3, GROUP 4.

LABORER CLASSIFICATIONS

GROUP 1 - Asphalt Laborer; Carpenter Tender; Concrete Curing Applicator; Dump Man (Batch Truck); Guardrail and Fence Installer; Joint Setter; Laborer (Construction); Landscape Laborer; Mesh Handlers & Placer; Right-of-way Laborer; Riprap Laborer & Grouter; Scaffold Erector; Seal Coating; Surface Treatment or Road Mix Laborer; Sign Installer; Slurry Seal; Utility Man; Bridge Man; Handyman; Waterproofing Laborer; Flagperson; Hazardous Waste (level D); Diver Tender; Zone Person & Traffic Control

GROUP 2 - Asphalt Raker; Concrete Puddler; Kettle Man Pipeline); Machine Driven Tools (Gas, Electric, Air); Mason Tender; Brick Paver; Mortar Mixer; Power Buggy or Power Wheelbarrow; Sheeting & Shoring Man; Surface Grinder Man; Plastic Fusing Machine Operator; Pug Mill Operator; & Vacuum Devices (wet or dry); Rodding Machine Operator; Diver; Screwwoman or Paver; Screed Person; Water Blast, Hand Held Wand; Pumps 4" & Under (Gas, Air or Electric) & Hazardous Waste (level C); Air Track and Wagon Drill; Bottom Person; Cofferdam (below 25 ft. deep); Concrete Saw Person; Cutting with Burning Torch; Form Setter; Hand Spiker (Railroad); Pipelayer; Tunnel Laborer (without air) & Caisson; Underground Person (working in Sewer and Waterline, Cleaning, Repairing & Reconditioning); Sandblaster Nozzle Person; & Hazardous Waste (level B)

GROUP 3 - Blaster; Mucker; Powder Person; Top Lander; Wrencher (Mechanical Joints & Utility Pipeline); Yarnier; Hazardous Waste (level A); Concrete Specialist; Concrete Crew in Tunnels (With Air-pressurized - \$1.00 premium); Curb Setter & Cutter; Grade Checker; Utility Pipeline Tapper; Waterline; and Caulker

GROUP 4 - Miner (With Air-pressurized - \$1.00 premium); & Gunite Nozzle Person

TUNNEL LABORER WITH AIR-PRESSURIZED ADD \$1.00 TO BASE RATE

SIGNAL PERSON WILL RECEIVE THE RATE EQUAL TO THE RATE PAID THE LABORER CLASSIFICATION FOR WHICH HE OR SHE IS SIGNALING.

FAIN0006-002 05/01/2016

ASHTABULA, CUYAHOGA, GEAUGA, LAKE, LORAIN, PORTAGE (N. of the East-West Turnpike) & SUMMIT (N. of the East-West Turnpike)

Table with 2 columns: Rates, Fringes. Rows include PAINTER, COMMERCIAL NEW WORK, REMODELING; & RENOVATIONS, GROUP 1-4, COMMERCIAL REPAIR, GROUP 1-2.

http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21

9/22/2016

Table with 2 columns: Rates, Fringes. Rows include IRONWORKER, IRON0550-004 05/01/2015

ASHLAND, CARROLL, COLUMBIANA (W. of a line from Damascus to Highlandtown), COSHOCTON (E. of a line beginning at NW Co. line going through Walhonding & Tunnel Hill to the South Co. line), HOLMES, HURON (S. of Old Rte. #224), MAHONING (S. of Old Rte. #224), MEDINA (S. of Old Rte. #224), PORTAGE (S. of Old Rte. #224), RICHLAND, STARK, SUMMIT (S. of Old Rte. #224, Excluding city limits of Barberton), TUSCARAWAS, & WAYNE

Table with 2 columns: Rates, Fringes. Rows include Ironworkers:Structural, Ornamental and Reinforcing, IRON0769-004 06/01/2016

ADAMS (Eastern Half), GALLIA, JACKSON (Southern Half), LAWRENCE & SCIOTO

Table with 2 columns: Rates, Fringes. Rows include IRONWORKER, IRON0787-003 06/01/2015

ATHENS, MEIGS, MORGAN, NOBLE, and WASHINGTON COUNTIES

Table with 2 columns: Rates, Fringes. Rows include IRONWORKER, LABO0265-008 05/01/2014

LABORER

ASHTABULA, ERIE, HURON, LORAIN, LUCAS, MAHONING, MEDINA, OTTAWA, PORTAGE, SANDUSKY, STARK, SUMMIT, TRUMBULL & WOOD COUNTIES, GROUP 1-4

CUYAHOGA AND GEAUGA COUNTIES ONLY: SEWAGE PLANTS, WASTE PLANTS, WATER TREATMENT FACILITIES, PUMPING STATIONS, & ETHANOL PLANTS CONSTRUCTION, CUYAHOGA, GEAUGA & LAKE COUNTIES, GROUP 1-4, REMAINING COUNTIES OF OHIO, GROUP 1

http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21

9/22/2016

Table with 2 columns: Rates, Fringes. Row includes GROUP 3.

PAINTER CLASSIFICATIONS - COMMERCIAL NEW WORK; REMODELING; & RENOVATIONS

GROUP 1 - Brush; & Roller

GROUP 2 - Sandblasting & Buffing

GROUP 3 - Spray Painting; Closed Steel Above 55 feet; Bridges & Open Structural Steel; Tanks - Water Towers; Bridge Painters; Bridge Riggers; Containment Builders

GROUP 4 - Bridge Blaster

PAINTER CLASSIFICATIONS - COMMERCIAL REPAIR

GROUP 1 - Brush; & Roller

GROUP 2 - Sandblasting & Buffing

GROUP 3 - Spray Painting

FAIN0007-002 07/01/2016

FULTON, HENRY, LUCAS, OTTAWA (Excluding Allen, Bay, Bono, Catawba Island, Clay Center, Curtice, Danbury, Eagle Beach, Elliston, Elmore, Erie, Fishback, Gem Beach & Genova) & WOOD

Table with 2 columns: Rates, Fringes. Rows include PAINTER, NEW COMMERCIAL WORK, GROUP 1-9

REPAINT IS 90% OF JR

PAINTER CLASSIFICATIONS

GROUP 1 - Brush; Spray & Sandblasting Pot Tender

GROUP 2 - Refineries & Refinery Tanks: Surfaces 30 ft. or over where material is applied to or labor performed on above ground level (exterior), floor level (interior)

GROUP 3 - Swing Stage & Chair

GROUP 4 - Lead Abatement

GROUP 5 - All Methods of Spray

GROUP 6 - Solvent-Based Catalized Epoxy Materials of 2 or More Component Materials, to include Solvent-Based Conversion Varnish (excluding water based)

GROUP 7 - Spray Solvent Based Material; Sand & Abrasive

http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21

9/22/2016

Blasting

GROUP 8 - Towers; Tanks; Bridges; Stacks Over 30 Feet

GROUP 9 - Epoxy Spray (excluding water based)

 FAIN0012-008 05/01/2015

BUTLER COUNTY

	Rates	Fringes
PAINTER		
GROUP 1.....	\$ 20.73	9.11
GROUP 2.....	\$ 23.39	9.11
GROUP 3.....	\$ 23.89	9.11
GROUP 4.....	\$ 24.14	9.11
GROUP 5.....	\$ 24.39	9.11

PAINTER CLASSIFICATIONS

GROUP 1: Bridge Equipment Tender; Bridge/Containment Builder

GROUP 2: Brush & Roller

GROUP 3: Spray

GROUP 4: Sandblasting; & Waterblasting

GROUP 5: Elevated Tanks; Steeplejack Work; Bridge; & Lead Abatement

 FAIN0012-010 05/01/2015

BROWN, CLERMONT, CLINTON, HAMILTON & WARREN

	Rates	Fringes
PAINTER		
HEAVY & HIGHWAY BRIDGES-		
GUARDRAILS-LIGHTPOLES-		
STRIPING		
Bridge Equipment Tender and Containment Builder....	\$ 20.73	9.11
Bridges when highest point of clearance is 60 feet or more; & Lead Abatement Projects.....	\$ 24.39	9.11
Brush & Roller.....	\$ 23.39	9.11
Sandblasting & Hopper		
Tender; Water Blasting....	\$ 24.14	9.11
Spray.....	\$ 23.89	9.11

 FAIN0093-001 12/01/2015

ATHENS, GUERNSEY, HOCKING, MONROE, MORGAN, NOBLE and WASHINGTON COUNTIES

	Rates	Fringes
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http://www.wdol.gov/wdol/scaffiles/davisbacon/OH2.dvb?v=21

9/22/2016

COLUMBIANA, MAHONING, and TRUMBULL COUNTIES

	Rates	Fringes
PAINTER		
GROUP 1.....	\$ 25.37	11.93
GROUP 2.....	\$ 27.37	11.93
GROUP 3.....	\$ 25.58	11.93
GROUP 4.....	\$ 25.87	11.93
GROUP 5.....	\$ 26.02	11.93
GROUP 6.....	\$ 26.27	11.93
GROUP 7.....	\$ 27.37	11.93

PAINTER CLASSIFICATIONS:

GROUP 1: Painters, Brush & Roller

GROUP 2: Bridges

GROUP 3: Structural Steel

GROUP 4: Spray, Except Bar Joist/Deck

GROUP 5: Epoxy/Mastic; Spray- Bar Joist/Deck; Working Above 50 Feet; and Swingstages

GROUP 6: Tanks; Sandblasting

GROUP 7: Towers; Stacks

 FAIN0555-002 06/01/2016

ADAMS, HIGHLAND, JACKSON, PIKE & SCIOTO

	Rates	Fringes
PAINTER		
GROUP 1.....	\$ 30.00	14.62
GROUP 2.....	\$ 31.38	14.62
GROUP 3.....	\$ 32.76	14.62
GROUP 4.....	\$ 35.45	14.62

PAINTER CLASSIFICATIONS

GROUP 1 - Containment Builder

GROUP 2 - Brush; Roller; Power Tools, Under 40 feet

GROUP 3 - Sand Blasting; Spray; Steam Cleaning; Pressure Washing; Epoxy & Two Component Materials; Lead Abatement; Hazardous Waste; Toxic Materials; Bulk & Storage Tanks of 25,000 Gallon Capacity or More; Elevated Tanks

GROUP 4 - Stacks; Bridges

 FAIN0603-002 06/01/2012

CARROLL, COSHOCTON, HOLMES, STARK, TUSCARAWAS & WAYNE

	Rates	Fringes
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PAINTER

Bridges; Towers, Poles & Stacks; Sandblasting

http://www.wdol.gov/wdol/scaffiles/davisbacon/OH2.dvb?v=21

9/22/2016

PAINTER

Bridges; Locks; Dams; Tension Towers; & Energized Substations.....\$ 30.69 16.15

Power Generating Facilities.\$ 27.54 16.15

 FAIN0249-002 05/01/2016

CLARK, DARKE, GREENE, MIAMI, MONTGOMERY & PREBLE

	Rates	Fringes
PAINTER		
GROUP 1 - Brush & Roller....	\$ 23.29	9.40
GROUP 2 - Swing, Scaffold Bridges; Structural Steel; Open Acid Tank; High Tension Electrical Equipment; & Hot Pipes.....	\$ 23.29	9.40
GROUP 3 - Spray; Sandblast; Steamclean; Lead Abatement.....	\$ 24.04	9.40
GROUP 4 - Steeplejack Work..	\$ 24.24	9.40
GROUP 5 - Coal Tar.....	\$ 24.79	9.40
GROUP 6 - Bridge Equipment Tender & or Containment Builder.....	\$ 26.53	9.40
GROUP 7 - Tanks, Stacks & Towers.....	\$ 26.93	9.40
GROUP 8 - Bridge Blaster, Rigger.....	\$ 32.90	9.40

 FAIN0356-002 09/01/2009

KNOX, LICKING, MUSKINGUM, and PERRY

	Rates	Fringes
PAINTER		
Bridge Equipment Tenders and Containment Builders....	\$ 27.93	7.25
Bridges; Blasters; and Riggers.....	\$ 34.60	7.25
Brush and Roller.....	\$ 20.93	7.25
Sandblasting; Steam Cleaning; Waterblasting; and Hazardous Work.....	\$ 25.82	7.25
Spray.....	\$ 21.40	7.25
Structural Steel and Swing Stage.....	\$ 25.42	7.25
Tanks; Stacks; and Towers..	\$ 28.63	7.25

 FAIN0438-002 12/01/2015

BELMONT, HARRISON and JEFFERSON COUNTIES

	Rates	Fringes
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PAINTER

Bridges, Locks, Dams, Tension Towers & Energized Substations.....\$ 31.88 14.90

Power Generating Facilities.\$ 28.73 14.90

 FAIN0476-001 06/01/2016

http://www.wdol.gov/wdol/scaffiles/davisbacon/OH2.dvb?v=21

9/22/2016

Steel; Structural Steel & Metalizing.....\$ 20.71 11.00

Brush & Roller.....\$ 20.00 11.00

Spray; Tank Interior & Exterior.....\$ 20.53 11.00

 FAIN0639-001 05/01/2011

	Rates	Fringes
Sign Painter & Erector.....	\$ 20.61	3.50+a+b+c

FOOTNOTES: a. 7 Paid Holidays: New Year's Day; Memorial Day; July 4th; Labor Day; Thanksgiving Day; Christmas Day & 1 Floating Day

b. Vacation Pay: After 1 year's service - 5 days' paid vacation; After 2, but less than 10 years' service - 10 days' paid vacation; After 10, but less than 20 years' service - 15 days' paid vacation; After 20 years' service - 20 days' paid vacation

c. Funeral leave up to 3 days maximum paid leave for death of mother, father, brother, sister, spouse, child, mother-in-law, father-in-law, grandparent and inlaw provided employee attends funeral

 FAIN0788-002 06/01/2016

ASHLAND, CRAWFORD, ERIE, HANCOCK, HURON, MARION, MORROW, OTTAWA (Allen, Bay, Bono, Catawba Island, Clay Center, Curtice, Danbury, Eagle Beach, Elliston, Elmore, Erie, Fishback, Gem Beach & Genoa), RICHLAND, SANDUSKY, SENECA & WYANDOT

	Rates	Fringes
PAINTER		
Brush & Roller.....	\$ 23.52	12.07
Structural Steel.....	\$ 25.12	12.07

WINTER REPAINT: Between December 1 to March 31 - 90%JR

\$.50 PER HOUR SHALL BE ADDED TO THE RATE OF PAY FOR THE CLASSIFICATION OF WORK:

While working swingstage, boatswain chair, needle beam and horizontal cable. While operating sprayguns, sandblasting, cobblasting and high pressure waterblasting (4000psi).

\$.100 PER HOUR SHALL BE ADDED TO THE RATE OF PAY FOR THE CLASSIFICATION OF WORK:

For the application of catalized epoxy, including latex epoxy that is deemed hazardous, lead abatement, or for work or material where special precautions beyond normal work duties must be taken. For working on stacks, tanks, and towers over 40 feet in height.

 FAIN0813-005 12/01/2008

GALLIA, LAWRENCE, MEIGS & VINTON

	Rates	Fringes
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PAINTER

http://www.wdol.gov/wdol/scaffiles/davisbacon/OH2.dvb?v=21

9/22/2016

Base Rate.....	\$ 24.83	10.00
Bridges, Locks, Dams & Tension Towers.....	\$ 27.83	10.00

 PAIN0841-001 06/01/2016
 MEDINA, PORTAGE (South of and including Ohio Turnpike), and SUMMIT (South of and including Ohio Turnpike) COUNTIES

	Rates	Fringes
Painters:		
GROUP 1.....	\$ 25.08	13.22
GROUP 2.....	\$ 25.73	13.22
GROUP 3.....	\$ 25.83	13.22
GROUP 4.....	\$ 25.93	13.22
GROUP 5.....	\$ 26.33	13.22
GROUP 6.....	\$ 39.20	11.75
GROUP 7.....	\$ 26.33	13.22

- PAINTER CLASSIFICATIONS:
- GROUP 1 - Brush, Roller & Paperhanger
 - GROUP 2 - Epoxy Application
 - GROUP 3 - Swing Scaffold, Bosum Chair, & Window Jack
 - GROUP 4 - Spray Gun Operator of Any & All Coatings
 - GROUP 5 - Sandblast, Painting of Standpipes, etc. from Scaffolds, Bridge Work and/or Open Structural Steel, Standpipes and/or Water Towers
 - GROUP 6 - Public & Commerce Transportation, Steel or Galvanized, Bridges, Tunnels & Related Support Items (concrete)
 - GROUP 7 - Synthetic Exterior, Drywall Finisher and/or Taper, Drywall Finisher and Follow-up Man Using Automatic Tools

 PAIN1020-002 07/01/2016

ALLEN, AUGLAIZE, CHAMPAIGN, DEFIANCE, HARDIN, LOGAN, MERCER, PAULDING, PUTNAM, SHELBY, VAN WERT, and WILLIAMS COUNTIES

	Rates	Fringes
PAINTER		
Brush & Roller.....	\$ 23.58	11.97
Drywall Finishing & Taping..	\$ 22.28	11.97
Lead Abatement.....	\$ 25.33	11.97
Spray, Sandblasting		
Pressure Cleaning, & Refinery.....	\$ 24.33	11.97
Swing Stage, Chair, Spiders, & Cherry Pickers..	\$ 23.83	11.97
Wallcoverings.....	\$ 21.18	11.97

All surfaces 40 ft. or over where material is applied to or labor performed on, above ground level (exterior), floor level (interior) - \$.50 premium

<http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21>

9/22/2016

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CARROLL (Northen Half), STARK, and WAYNE COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 34.53	17.49

 PLUM0120-002 05/02/2016

ASHTABULA, CUYAHOGA, GEAUGA, LAKE, LORAIN (the C.E.I. Power House in Avon Lake), MEDINA (N. of Rte. #18) & SUMMIT (N. of #303)

	Rates	Fringes
PIPEFITTER.....	\$ 36.77	22.90

 PLUM0162-002 06/01/2016

CHAMPAIGN, CLARK, CLINTON, DARKE, FAYETTE, GREENE, MIAMI, MONTGOMERY & PREBLE

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	\$ 28.80	20.92

 PLUM0168-002 06/01/2016

MEIGS, MONROE (South of Rte. #78), MORGAN (South of Rte. #78) & WASHINGTON

	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 32.58	27.22

 PLUM0189-002 06/01/2013

DELAWARE, FAIRFIELD, FRANKLIN, HOCKING, LICKING, MADISON, MARION, PERRY, PICKAWAY, ROSS & UNION

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	\$ 34.08	20.06

 * PLUM0219-002 06/01/2016

MEDINA (Rte. #18 from eastern edge of Medina Co., west to eastern corporate limits of the city of Medina, & on the county road from the west corporate limits of Medina running due west to and through community of Risley to the western edge of Medina County - All territory south of this line), PORTAGE, and SUMMIT (S. of Rte. #303) COUNTIES

	Rates	Fringes
Plumber and Steamfitter.....	\$ 36.27	23.24

 PLUM0392-002 06/01/2016

BROWN, BUTLER, CLERMONT, HAMILTON & WARREN

<http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21>

9/22/2016

Applying Coal Tar Products - \$1.00 premium		
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 PAIN1275-002 11/01/2015
 DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, MADISON, PICKAWAY, ROSS & UNION

	Rates	Fringes
PAINTER		
Bridges.....	\$ 34.18	11.26
Brush; Roller.....	\$ 24.70	11.26
Sandblasting; Steamcleaning;		
Waterblasting (3500 PSI or Over) & Hazardous Work.....	\$ 25.40	11.26
Spray.....	\$ 28.20	11.26
Stacks; Tanks; & Towers.....	\$ 26.21	11.26
Structural Steel & Swing Stage.....	\$ 25.00	11.26

 PLUM0042-002 07/01/2016

ASHLAND, CRAWFORD, ERIE, HURON, KNOX, LORAIN, MORROW, RICHLAND & WYANDOT

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	\$ 31.95	20.32

 PLUM0050-002 07/04/2016

DEFIANCE, FULTON, HANCOCK, HENRY, LUCAS, OTTAWA, PAULDING, PUTNAM, SANDUSKY, SENECA, WILLIAMS & WOOD

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	\$ 40.00	24.36

 PLUM0055-003 05/02/2016

ASHTABULA, CUYAHOGA, GEAUGA, LAKE, MEDINA (N. of Rte. #18 & Smith Road) & SUMMIT (N. of Rte. #303, including the corporate limits of the city of Hudson)

	Rates	Fringes
PLUMBER.....	\$ 34.90	23.08

 PLUM0083-001 07/01/2013

BELMONT & MONROE (North of Rte. #78)

	Rates	Fringes
Plumber and Steamfitter.....	\$ 25.42	27.83

 PLUM0094-002 05/01/2016

<http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21>

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COLUMBIANA (Excluding Washington & Yellow Creek Townships & Liverpool Twp. - Secs. 35 & 36 - West of County Road #427), MAHONING and TRUMBULL COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 31.39	18.77

 PLUM0396-001 06/01/2016

COLUMBIANA (Excluding Washington & Yellow Creek Townships & Liverpool Twp. - Secs. 35 & 36 - West of County Road #427), MAHONING and TRUMBULL COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 33.50	21.96

 PLUM0495-002 06/01/2016

CARROLL (Rose, Monroe, Union, Lee, Orange, Perry & Loudon Townships), COLUMBIANA (Washington & Yellow Creek Townships & Liverpool Township, Secs. 35 & 36, West of County Rd. #427), COSHOCTON, GUERNSEY, HARRISON, HOLMES, JEFFERSON, MORGAN (South to State Rte. #78 & from McConnellsville west on State Rte. #37 to the Perry County line), MUSKINGUM, NOBLE, and TUSCARAWAS COUNTIES

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	\$ 41.08	21.26

 PLUM0577-002 06/01/2016

ADAMS, ATHENS, GALLIA, HIGHLAND, JACKSON, LAWRENCE, PIKE, SCIOTO & VINTON

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	\$ 32.60	22.73

 * PLUM0776-002 07/01/2016

ALLEN, AUGLAIZE, HARDIN, LOGAN, MERCER, SHELBY and VAN WERT COUNTIES

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	\$ 34.25	22.09

 TEAM0377-003 05/01/2012

STATEWIDE, EXCEPT CUYAHOGA, GEAUGA & LAKE

	Rates	Fringes
TRUCK DRIVER		
GROUP 1.....	\$ 23.38	13.18
GROUP 2.....	\$ 23.80	13.18

 TRUCK DRIVER CLASSIFICATIONS

<http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21>

9/22/2016

GROUP 1 - Asphalt Distributor; Batch; 4- Wheel Service; 4-Wheel Dump; Oil Distributor & Tandem

GROUP 2 - Tractor-Trailer Combination: Fuel; Pole Trailer; Ready Mix; Semi-Tractor; & Asphalt Oil Spraybar Man When Operated From Cab; 5 Axles & Over; Belly Dump; End Dump; Articulated Dump; Heavy Duty Equipment; Low Boy; & Truck Mechanic

TEAM0436-002 05/01/2015

CUYAHOGA, GEauga & LAKE

	Rates	Fringes
TRUCK DRIVER		
GROUP 1.....	\$ 26.90	14.85
GROUP 2.....	\$ 27.40	14.85

GROUP 1: Straight & Dump, Straight Fuel

GROUP 2: Semi Fuel, Semi Tractor, Euclids, Darts, Tank, Asphalt Spreaders, Low Boys, Carry-All, Tourna-Rockers, Hi-Lifts, Extra Long Trailers, Semi-Pole Trailers, Double Hook-Up Tractor Trailers including Team Track & Railroad Siding, Semi-Tractor & Tri-Axle Trailer, Tandem Tractor & Tandem Trailer, Tag Along Trailer, Expandable Trailer or Towing Requiring Road Permits, Ready-Mix (Agitator or Non-Agitator), Bulk Concrete Driver, Dry Batch Truck, Articulated End Dump

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

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

<http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21>

9/22/2016

Regional Office for the area in which the survey was conducted because those Regional Offices have 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.

END OF GENERAL DECISION

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

<http://www.wdol.gov/wdol/scafiles/davisbacon/OH2.dvb?v=21>

9/22/2016

SECTION 01 1100

SUMMARY OF WORK

PART 1 GENERAL

1.1 PROJECT DESCRIPTION

- A. The project consists of a 24-inch gravity outfall sewer and a 10-inch forcemain. The outfall sewer will be constructed from the site of a new WRRF to the Village's existing wastewater treatment plant outfall. The forcemain will be constructed from a pump station at the Village's existing wastewater treatment plant to the new WRRF. Also included are 18-inch and 24-inch gravity influent sewers, storm sewer relocation, and all associated improvements as shown on the plans and specified in the bid documents.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. The work of any one trade, Contractor or Subcontractor shall not be limited to the work listed in an individual specification section. Such listings are intended as general guides to the contents of a Section, and not as a scope of the work. Unless otherwise indicated, provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, test equipment, testing and other facilities and services necessary for the proper execution and completion of the work, whether temporary or permanent, and whether or not incorporated or to be incorporated in the work.

1.3 WORK SEQUENCE

- A. Out-of-Sequence Work
 1. The work includes any out-of-sequence work required to meet job progress, such as work made necessary by removal of construction plant or temporary facilities, work necessitated by the special construction phasing requirements of the Project, or work caused or interrupted by the Owner's operations.
 2. Certain work may be required in order to provide occupancy of the Project prior to its final completion. Such work may not necessarily be in sequence with other work of the Contractor.
 3. Work omitted because of construction schedules, interference with construction facilities, sequence of operations, or job conditions shall be completed as set forth in the Contract Documents.
 4. In the event of out-of-sequence work, the Contractor shall perform its work in the areas designated and shall have no claims against Owner and does hereby release Owner from any claims for damages or extra cost by reason of any such requirements.
 5. Perform all such work at no extra cost to the Owner.

1.4 CONTRACTOR USE OF PREMISES

- A. Access: At all times, provide the Engineer and Owner easy and safe access to the work wherever it is in preparation and progress. Provide such access so Engineer may perform its functions.
- B. Use of Site: Confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and do not unreasonably encumber the Site with any materials or equipment.
- C. Environmental Requirements: The following requirements are in addition to all applicable laws and regulations:
 - 1. No burning will be permitted on the Site.
 - 2. Control dust by water sprinkling, temporary enclosures, or other methods acceptable to the Owner. Comply with governing regulations.
 - 3. Provide proper ventilation for enclosed spaces during construction.
 - 4. In the generation of temporary power or heat, or in the operation of equipment of any kind, do not use fuels which leave deposits on building surfaces.
- D. Documents Furnished: Owner will furnish the following sets of Project Drawings and Manuals free of charge. Additional sets may be purchased by paying the cost of printing the Drawings and Project Manual.
 - 1. Each Contractor: Five (5) full-size sets, and a CD with PDF files.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 1100

SECTION 01 1400
WORK RESTRICTIONS

PART 1 GENERAL

1.1 DESCRIPTION

- A. Section includes:
 - 1. Work Hours
 - 2. Coordination with Owner's Operations

1.2 WORK HOURS

- A. Except as otherwise indicated in this section, work shall be limited to the Workday defined in Division 01, Section "General Conditions".
- B. Work outside the Workday defined in Division 01, Section "General Conditions" requires prior written approval of the Engineer.

1.3 COORDINATION WITH OWNER'S OPERATIONS

- A. The existing Village of Ashville wastewater treatment plant and collection system are continuously operating facilities. The Work of this CONTRACTOR shall not interfere in any way whatsoever with the daily operations of the plant or collection system operations. If outages are necessary for the proper completion of the Work, such work must be scheduled through the Engineer and approved by the Owner.
- B. Federal regulations prohibit bypassing of any sewage during construction operations. Provide any required temporary pumping facilities, piping, and other equipment and appurtenances as necessary to complete the project without any plant bypassing. Continuous treatment must be provided at the same level during construction as existed prior to construction.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 1400

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SECTION 01 2200

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 EXPLANATION OF ITEMS

- A. The Contractor shall base the unit prices that make up the costs submitted on the Bid Form on the methods of determining quantities of work and/or equipment items listed in this section. Other applicable sections of the Contract Documents shall be referenced where indicated.
- B. In determining the unit prices, the Contractor shall include all items of labor, materials, tools, equipment, insurance, and other costs necessary to fully complete the work pursuant to each item.
- C. The measurement and payment items are listed below according to the item numbers shown in Division 00 Section "Unit Price Proposal Form".

PART 2 MEASUREMENTS AND MATERIALS

2.1 WORK ITEM NUMBER AND DESCRIPTION

- A. Item Nos. 1 through 18
 - 1. Work included, measurement, and payment as indicated in associated ODOT CMS Item No. technical specification section.
- B. Items Nos. 19 through 21 and Nos. 25 through 27
 - 1. Work Included
 - a. Under these items, the Contractor shall be responsible for pavement replacement as called for on the plans.
 - 2. Measurement
 - a. The quantity to be paid shall be the unit volume as established on the Unit Price Proposal Form. Measurement of the actual quantities will be made by the Owner.
 - 3. Payment
 - a. The price per unit, as established on the Unit Price Proposal Form, shall be full compensation for all work as required.
- C. Item No. 22 - 12'x10' Rubber Speed Bumps (For Haddox Property)
 - 1. Work Included
 - a. Under this item, the Contractor shall be responsible for installation of speed bumps as called for on the plans.
 - 2. Measurement
 - a. The quantity to be paid shall be the quantity as established on the Unit Price Proposal Form. Measurement of the actual quantities will be made by the Owner.
 - 3. Payment
 - a. The price per unit, as established on the Unit Price Proposal Form, shall be full compensation for all work as required.

- D. Item No. 23 - 6' Concrete Parking Blocks, ODOT RM-6-1 (For Haddox Property)
 - 1. Work Included
 - a. Under this item, the Contractor shall be responsible for installation of parking blocks as called for on the plans.
 - 2. Measurement
 - a. The quantity to be paid shall be the quantity as established on the Unit Price Proposal Form. Measurement of the actual quantities will be made by the Owner.
 - 3. Payment
 - a. The price per unit, as established on the Unit Price Proposal Form, shall be full compensation for all work as required.

- E. Item No. 24 - Deteriorated Asphalt Replacement with 6" Gravel Base and Type "D" Geotextile Fabric (For Haddox Property)
 - 1. Work Included
 - a. Under this item, the Contractor shall be responsible for installation of geotextile fabric and a gravel base as called for on the plans.
 - 2. Measurement
 - a. The quantity to be paid shall be the quantity as established on the Unit Price Proposal Form. Measurement of the actual quantities will be made by the Owner.
 - 3. Payment
 - a. The price per square foot, as established on the Unit Price Proposal Form, shall be full compensation for all work as required.

- F. Item Nos. 28 through 35
 - 1. Work Included
 - a. The Contractor shall furnish and install all manholes as shown on the drawings and described in the specifications.
 - b. Furnish all equipment and labor to test each manhole as described in the specifications. All manholes not passing the test will be sealed or reconstructed and retested at the Contractor's expense. Procedure to be repeated until the manhole passes the test.
 - 2. Measurement
 - a. The total number of completed and installed manholes passing the required testing.
 - 3. Payment
 - a. The total price per each will be full compensation as may be required for execution of the work.

- G. Item Nos. 36 through 44
 - 1. Work included, measurement, and payment as indicated in associated ODOT CMS Item No. technical specification section.

- H. Item Nos. 45 through 56
 - 1. Work Included
 - a. Under this item, the Contractor shall furnish and install all sanitary gravity sewers complete with excavation, backfill, compaction, additional clean fill, and pipe bedding material around pipes as required by trench details, and dispose of all surplus excavated material in accordance with the drawings and specifications.

- b. The work shall include removal of surface improvements, including, but not limited to, driveways, roadways, curbs, and sidewalks; clearing (including stockpiling of topsoil); restoration of trees, shrubbery, signs, culverts, storm drains, guardrails, mailboxes, fences, and miscellaneous items destroyed or damaged by the Contractor's operations; sheeting, shoring and bracing; control of water; protection and support of pipe lines and utilities; replacement and repair of pipe lines and utilities removed or damaged by the Contractor's operations; and all incidental work not specifically provided for under other items.
 - c. Stockpiling existing topsoil for landscaping work in areas to be seeded.
 - d. Setting grade stakes, field layout, and surveys necessary to maintain grade and alignment.
 - e. The Contractor shall restore the site to its original condition or better. Restore site contours and grades. Remove all excess materials, debris and waste, and dispose of legally off-site. Remove all dirt clumps, roots, and rocks larger than 1 inch in diameter, and generally prepare area for seeding or pavement replacement.
 - f. Perform the required testing as specified.
- 2. Work Included Elsewhere
 - a. Manholes
 - b. Pavement restoration items (when specified)
 - c. Seeding restoration (where specified)
 - d. Maintaining traffic
 - 3. Measurement
 - a. The quantity to be paid for sanitary sewer shall be the horizontal measured length along the centerline of the installed sewer pipe from centerline of MH to centerline of MH.
 - b. Measurement of the actual quantities will be made by the Engineer.
 - 4. Payment
 - a. The unit price per lineal foot will be full compensation for providing all of the sanitary sewer and testing complete as may be required for execution of the work.
- I. Items Nos. 57 through 60
 - 1. Work included, measurement, and payment as indicated in associated ODOT CMS Item No. technical specification section.
 - J. Items Nos. 61 through 63
 - 1. Work included, measurement and payment as indicated and as required in the drawings and specifications.
 - 2. Measurement
 - a. The quantity to be paid for shall be the number of linear feet of finished utility measured along the pipe centerline, complete in place.
 - b. Measurement of the actual quantities will be made by the Engineer.
 - 3. Payment
 - a. The unit price per lineal foot will be full compensation for providing all of the various utilities and testing complete as may be required for execution of the work.
 - K. Items Nos. 64 through 65
 - 1. Work included, measurement, and payment as indicated in associated ODOT CMS Item No. technical specification section.

- L. Items Nos. 66 - 10-inch Force Main Air Release Valve, Complete W/ Structure
 - 1. Work included, measurement and payment as indicated and as required in the drawings and specifications.
 - 2. Measurement
 - a. The quantity to be paid for shall be the number of air release valves (complete with structures) installed.
 - b. Measurement of the actual quantities will be made by the Engineer.
 - 3. Payment
 - a. The price per unit, as established on the Unit Price Proposal Form, shall be full compensation for all work as required.

- M. Items Nos. 67 - 10-inch Force Main Clean Out Assembly
 - 1. Work included, measurement and payment as indicated and as required in the drawings and specifications.
 - 2. Measurement
 - a. The quantity to be paid for shall be the number of forcemain cleanouts installed.
 - b. Measurement of the actual quantities will be made by the Engineer.
 - 3. Payment
 - a. The price per unit, as established on the Unit Price Proposal Form, shall be full compensation for all work as required.

- N. Item No. 68 - Seeding and Mulching, Class 2
 - 1. Work Included
 - a. Under this item, the Contractor shall perform all work as outlined in the State of Ohio, Department of Transportation, Construction and Material Specifications, latest edition, under Item 659.
 - 2. Measurement
 - a. The quantity to be paid for under this item shall be limited to a width of thirty feet wide along the centerline of the installed utility.
 - b. Measurements of the actual quantities will be made by the Engineer.
 - 3. Payment
 - a. The unit price per square foot will be full compensation for all work as required.

- O. Item No. 69 - Core Drill and Boot Existing Manhole, As Per Plan
 - 1. Work Included
 - a. Under this item, the Contractor shall employ the services of a firm that specializes in manhole coring and installing pipe boot installation. Modify/construct flow channel to accommodate new pipe connection. No jack hammering or other means of creating a pipe penetration opening will be permitted.
 - 2. Measurement
 - a. The quantity to be paid shall be the unit as established on the Unit Price Proposal Form. Measurement of the actual quantities will be made by the Owner.
 - 3. Payment
 - a. The price per unit, as established on the Unit Price Proposal Form, shall be full compensation for all work as required.

- P. Item No. 70 - Dewatering
 - 1. Work Included

- a. Under this item, the Contractor shall perform all work as outlined in the Dewatering specification that is required.
 - 2. Payment
 - a. The lump sum unit price shall be full compensation for all work as required.

- Q. Item No. 71 - Bypass Pumping, As Directed
 - 1. Work Included
 - a. Under this item, the Contractor shall perform all work as outlined in the Bypass Pumping specification.
 - 2. Payment
 - a. The lump sum unit price shall be full compensation for all work as required.

- R. Item No. 72 - Field Tile, Underdrain, Perimeter Drain, Culvert, Sanitary Sewer Service, Leach Field Pipe, Water Line, and Gas Line Repair/Replacement, As Directed
 - 1. Work Included
 - a. The Contractor shall relocate and replace "in-kind" any existing field tile, underdrain, perimeter drain, culvert, sanitary sewer service, leach field pipe, water line, and gas line that was disturbed by the new construction. The Contractor shall coordinate with the gas company for the gas company to repair/replace gas lines.
 - b. Contractor shall be responsible for any house service utility (water, gas, sanitary) that is damaged, broken, or requires relocation for installation of the forcemain and/or outfall sewer.
 - c. The work shall include furnishing and installing all pipe and fittings, excavating all earth for trenches, providing pipe bedding material around pipes as required by bedding and trench details, all backfill, seeding/mulching, and pavement restoration as required, and disposing of all surplus excavated material.
 - d. The work shall include all incidental work not specifically provided under other items.
 - e. The work shall include making connections to existing pipes, including control and maintenance of sewer flow.
 - 2. Measurement
 - a. The quantity to be paid for shall be the measured length along the centerline of the pipe from beginning to end of the relocated pipe.
 - b. Measurements shall be made by the Engineer.
 - 3. Payment
 - a. The unit price per lineal foot will be full compensation for providing all of the various pipes complete and restored to working condition. This includes payment for any water, sanitary, or gas service laterals that are required to be relocated for installation of the forcemain and/or outfall sewer.
 - b. Payment will not be made for repair and replacement of any existing pipe that is shown on the plans, field located prior to construction, or otherwise brought to the Contractor's attention prior to disturbance except for sanitary service connections that require lowering.

- S. Item No. 73 – Transfer (3/4-inch) Water Service
 - 1. Work Included
 - a. The Contractor shall relocate and replace "in-kind" water service line as identified on the plans, or as directed by the Engineer

- b. The work shall include furnishing and installing all pipe and fittings, excavating all earth for trenches, providing pipe bedding material around pipes as required by bedding and trench details, all backfill, seeding/mulching, and pavement restoration as required, and disposing of all surplus excavated material.
 - c. The work shall include all incidental work not specifically provided under other items.
 - d. The work shall include making connections to existing pipes.
 - 2. Measurement
 - a. The quantity to be paid for shall be the measured length along the centerline of the pipe from beginning to end of the relocated pipe.
 - b. Measurements shall be made by the Engineer.
 - 3. Payment
 - a. The unit price per lineal foot will be full compensation for water service complete and restored to working condition.
 - b. Payment will not be made for repair and replacement of any existing pipe that is shown on the plans, field located prior to construction, or otherwise brought to the Contractor's attention prior to disturbance except for sanitary service connections that require lowering.
- T. Item No. 74 - Special Structural Modification as Directed
 - 1. Work Included
 - a. Under this item, the Contractor shall be responsible for structure modification as called for on the plans.
 - 2. Measurement
 - a. The quantity to be paid shall be the quantity as established on the Unit Price Proposal Form. Measurement of the actual quantities will be made by the Owner.
 - 3. Payment
 - a. The price per unit, as established on the Unit Price Proposal Form, shall be full compensation for all work as required.
- U. Item No. 75 – Stormwater Pollution Prevention Plan Preparation and Implementation
 - 1. Work Included
 - a. The Contractor shall prepare the SWPPP, submit to the Ohio EPA, and pay all necessary fees.
 - b. The Contractor shall submit an erosion and sediment control plan to the engineer for information only prior to the pre-construction conference. All land - disturbing activities must comply with all provisions of the Ohio EPA sedimentation control regulation. All land - disturbing activities shall be subject to inspection and site investigation by the Ohio EPA. Failure to comply with these regulations is subject to legal enforcement action.
 - c. The contractor shall be solely responsible for providing necessary and adequate measures for proper control of erosion and sediment runoff from the site along with proper maintenance and inspection in compliance with the NPDES general permit for storm water discharges associated with construction activity.
 - d. The Contractor shall install in sufficient number and size, sediment basins to treat all trench/excavation dewatering discharges. Other environmental control measures include, but are not limited to, silt fences, straw bale dikes, Dandy-Bags, storm sewer inlet covers, stone, fill material, etc.

- e. The Contractor shall install and maintain stabilized crushed aggregate entrance/exits from public roadways.
- f. The Contractor shall provide street sweeping and watering for dust control.
- 2. Measurement
 - a. The environmental control measures will be installed and maintained to the satisfaction of the Engineer and the Ohio EPA.
- 3. Payment
 - a. The total lump sum amount for work will be full compensation for plan preparation, permit fees, implementation, and maintenance including providing environmental control measures. Equal monthly payments will be made throughout the original project time period.

END OF SECTION 01 2200

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SECTION 01 2500

SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements
 - 1. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1.3 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use facsimile of form provided in Project Manual.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of engineers and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES and OBC.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall

Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

- k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Engineer will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Engineer's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Requested substitution will not adversely affect Contractor's construction schedule.
 - c. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - d. Requested substitution is compatible with other portions of the Work.
 - e. Requested substitution has been coordinated with other portions of the Work.
 - f. Requested substitution provides specified warranty.
 - g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Not allowed.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 2500

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SECTION 01 3113

COORDINATION

PART 1 GENERAL

1.1 REFERENCES

- A. The requirements of Division 01 apply to the work of all other Sections.

1.2 PROJECT COORDINATION

- A. This project is a single-prime contract. The General Contractor is responsible for coordination between any Mechanical, Electrical, or other trade contractors which are a sub to the General Contractor. This includes providing information and work as required so as not to delay other contractors or the project.
- B. Failure to comply with these provisions may result in the Owner withholding payment to cover damages to the other contractors who have a contract with the City and/or could be cause for termination of the contract.
- C. Cooperation and coordination includes, but is not necessarily limited to scheduling, attending meetings, preparation and submitted of coordination drawings in a timely manner, providing temporary facilities, cleanup, and other such items.

1.3 WORK SEQUENCING AND PLANT SHUT-DOWN

- A. The existing wastewater treatment plant is to remain operational during all times of Construction. At no point should the wastewater treatment plant be incapable of receiving influent flow or discharging untreated or patially treated flow.
- B. Influent flow must be capable of being received and treated at all times, whether this includes use of the existing wastewater treatment plant, use of the new WRRF and pumping facilities, a combination of the two, or bypass pumping strategies.

1.4 CUTTING AND PATCHING

- A. Cutting and Patching
 1. Cutting of new and existing work, including demolition of portions of structures (i.e., to install an item in an existing wall), shall be performed by the Contractor or Subcontractor requiring access.
 2. Openings in new work which can be pre-planned by the Contractor requiring the opening shall be built into the work by the proper trade for each material under his Contract. It is the responsibility of the Contractor requiring such openings or requiring the placement of built-in items, to coordinate the work with the proper trade for each material, sufficiently in advance for the work to be accomplished in the proper sequence and without delay, or pay the costs caused by the delay or for extra work required.

3. Do not damage or endanger any portion of the work of the Contract, of the Owner, or of any separate Contractors by cutting, patching or otherwise altering any such work, or by excavation.
4. Do not cut or otherwise alter the work of the Owner or any separate Contractor except with the written consent of the Owner and of such separate Contractor. Do not unreasonably withhold from the Owner or any separate Contractor, consent for cutting or otherwise altering the work.
5. Do not cut, weld to, drill, remove or otherwise alter any structural member, whether new or existing, without the written consent of Engineer, unless such condition is indicated in detail on the Drawings and reinforcing of members affected or new members to compensate for such cutting, drilling, removals or other alteration are indicated.

B. General Patching Requirements

1. Patching work shall be performed by the proper trade for each material to be patched.
2. Patch all materials, including finish materials, damaged in the performance of work under this Contract.
3. Where walls, partitions and ceilings are required to have a smoke or fire rating, they must be continuous through concealed spaces and sealed tightly against any penetrations of pipes, ducts, conduits, or other building components.
 - a. Patching shall be required of any cracks, holes or defects whether existing or resulting from the work of this or any other Contract in this Project to achieve the required smoke or fire rating.
 - b. Patching shall be performed to restore and to maintain the integrity of floor/ceiling assemblies and roof/ceiling assemblies that are required to have a fire rating.
4. Workmanship: If the wall or ceiling is painted, the final 2 coats of paint shall be applied to the entire wall, corner to corner.
5. Responsibility for patching and payment therefore shall be on the following basis:
 - a. Patching after cutting by a trade requiring access into construction shall be paid for by the trade requiring access.
 - b. Holes or other openings left by installation of mechanical or electrical items or by installation of cabinetwork or other equipment shall be paid for by the trade installing such item.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 3113

SECTION 01 3119

PROJECT MEETINGS

PART 1 GENERAL

1.1 PRE-CONSTRUCTION CONFERENCES

- A. A pre-construction meeting will be scheduled by the Owner after the award of contract.
- B. Items to be discussed will include those sections of the specifications preceding Division 02. The Engineer will prepare the agenda from the following items:
 - 1. Discussion of construction schedules
 - 2. Critical work sequencing
 - 3. Major equipment deliveries and priorities
 - 4. Project Coordination
 - a. Designation of responsible personnel
 - 5. Procedures and process of:
 - a. Field decisions
 - b. Proposal requests
 - c. Submittals
 - d. Change orders
 - e. Applications for payment
 - 6. Adequacy of distribution of Contract Documents
 - 7. Procedures for maintaining Record Documents
 - 8. Use of Premises
 - a. Office, work, and storage areas
 - b. Owner's requirements
 - 9. Construction facilities, controls, and construction aids
 - 10. Temporary utilities
 - 11. Safety and first aid procedures
 - 12. Security procedures
 - 13. Housekeeping procedures
- C. The Owner's representative, the Engineer, and the Contractor shall attend. The Engineer's Resident Project Representative and the Contractor's Superintendent shall attend. Other interested personnel may also attend.
- D. The meeting will be chaired by the Engineer who will take and distribute minutes.

1.2 PROGRESS MEETINGS

- A. The Contractor shall, at a time and place approved by the Engineer, hold job meetings to coordinate the work and discuss problems that may arise concerning proper timing and execution of the work.
 - 1. Additional meetings may be called by the Owner, Engineer or Contractor as the need arises.
 - 2. Responsible representatives of the Contractor, Owner, and Engineer shall attend these meetings. Subcontractors may occasionally be asked to attend.

3. Engineer shall preside and take minutes of each entire meeting and reproduce and distribute such minutes to all parties concerned.
 4. The only tape recorder or other electronic recording device that will be permitted will be that of the person presiding at the meeting.
 5. Suggested Agenda:
 - a. Review and approval of minutes of previous meeting
 - b. Review of work progress since previous meeting
 - c. Field observations, problems, conflicts
 - d. Problems which impede construction schedule
 - e. Review of off-site fabrication, delivery schedules
 - f. Corrective measures and procedures to regain projected schedule
 - g. Revisions to Construction Schedule
 - h. Progress, schedule, during succeeding work period
 - i. Coordination of schedules
 - j. Review submittal schedules; expedite as required
 - k. Maintenance of quality standards
 - l. Pending changes and substitutions
 - m. Review proposed changes for:
 - 1) Effect on construction schedule and on completion date
 - 2) Effect on other contracts of the Project
 - n. Other business
- B. Contractor shall schedule weekly job progress meetings with other Contractors and major subcontractors. Coordinate with the Engineer on the time and place of the meeting, which shall be the same day and hour of the week for the duration of the work, except upon instructions of the Engineer; the meetings may be increased or decreased as required by the progress of the work.
- C. The Contractor shall be responsible for notifying its subcontractors of the time and place of job meetings if it wishes them present, or if their presence is requested by the Engineer.
- D. Conduct meetings in a manner that will resolve coordination problems.
- E. Contractor shall conduct the job meetings and shall take notes on discussions and conclusions and will distribute within 72 hours, excluding Saturdays, Sundays, and holidays, via e-mail to Engineer and Owner for review/comment.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 3119

SECTION 01 3120

FIELD ENGINEERING

PART 1 GENERAL

1.1 FIELD MEASUREMENTS

- A. Make field measurements wherever possible for accurate fabrication of built-in or attached products. Do not delay job progress. Allow for trimming where field measurements cannot be made prior to fabrication.

1.2 LAYOUT

- A. Establish bench marks and layouts as required, from the information indicated on the Drawings. Extend these lines up through the Building as the work progresses. Each Subcontractor shall lay out its work from these references.
- B. Protect control points prior to starting site work and preserve all permanent reference points during construction.
 - 1. Make no changes or relocations without prior written notice to Engineer.
 - 2. Report to Engineer when any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations.
 - 3. Require surveyor to replace project control points which may be lost or destroyed.
 - a. Establish replacements based on original survey control.

1.3 PROJECT SURVEY REQUIREMENTS

- A. Establish lines and levels, locate and lay-out, by instrumentation and similar appropriate means:
 - 1. Site Improvements
 - a. Stakes for grading, fill and topsoil placement.
 - b. Utility slopes and invert elevations.
 - 2. Batter boards for structures.
 - 3. Building foundation, column locations and floor levels.
 - 4. Controlling lines and levels required for the mechanical and electrical trades.
- B. From time to time, verify layouts by the same methods.
- C. At the conclusion of the Project, obtain the services of a professional surveyor to provide as-built site plan in electronic format (AutoCAD latest edition) to reflect all grades, pavements, surface sections, etc.

1.4 RECORDS

- A. Maintain a complete, accurate log of all control and survey work as it progresses.

1.5 SUBMITTALS

- A. On request of the Engineer, submit documentation to verify the accuracy of field engineering work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 3120

SECTION 01 3300

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 GENERAL

- A. All submittals shall be made to the Engineer unless specifically noted otherwise or unless instructed in writing by the Owner.
- B. Submit a complete list of required submittals.
- C. Receive, check, approve as required, and submit all items listed herein by the time indicated, accompanied by a transmittal letter using the form attached at the end of this Section.
- D. Keep an accurate record of the date of submittal and the date received on the Project.
- E. Contractor shall supply all AIA forms. (One source of supply is the local AIA Chapter office.) The Engineer will supply a copy of all other forms.
- F. Following is a general list of required submittals and the time frame for submittal.
 - 1. Within 30 Days after Contract Signing
 - a. Progress schedule.
 - b. Submittal schedule.
 - 2. Prior to First Progress Payment
 - a. Progress Schedule.
 - b. Submittal Schedule.
 - c. Application and Certificate for Payment.
 - d. Schedule of Values.
 - e. Subcontractor and Material Lists.
 - 3. With Each Progress Payment.
 - a. Affidavit and Waiver of Lien (see attached form) from each Contractor and sub-contractor.
 - b. Submittal Schedule.
 - c. Schedule of Values.
 - 4. As Work Progresses
 - a. Monthly updated Progress Schedule.
 - b. Wage Rate and Payroll Certificates.
 - c. Notice of Furnishings.
 - d. Materials Certifications.
 - e. Test Reports.
 - f. Shop Drawings.
 - g. Maintenance Instructions.
 - h. Operating Instructions.
 - i. Product Data.
 - j. Samples.
 - k. Reference Submittals.
 - l. Progress Photographs.

- m. Special Guaranties and Warranties.
- n. Updated Subcontractor List.
- 5. With Request for Final Payment
 - a. As-Built Drawings.
 - b. Final Affidavits and Waivers of Lien (see attached form).
 - c. Complete package of Shop Drawings and Product Data conforming reproducibles.
 - d. Final Photographs.
 - e. Keys and Keying Schedule.
 - f. Certificate of Inspection.
 - g. Certificate of Occupancy.

1.2 PROGRESS SCHEDULES

A. Preliminary Construction Schedule

1. At fourteen calendar days following written Notice to Proceed, a Contract Milestone date has been established which is the Contractor's submittal to the Engineer for review and approval of an electronic PDF of a bar-chart schedule covering the first 45 calendar days of work to be performed, while the Detailed Construction Network is being prepared. A copy will be returned to the Owner, Field Representative, and each Contractor.
2. The Contractor shall submit to the Engineer for review and approval, with the Preliminary Construction Schedule, a detailed breakdown of the costs for all work activities identified in the schedule. The cost for each work Activity shall include mobilization, materials, labor, equipment, overhead, and profit. The Contractor will include the cost projections as part of the CPM Schedule or as a separate document that corresponds to the CPM Schedule. Cost breakdown must be consistent with the Pay Items of the base bid schedule. After review, any necessary revision, and approval, this cost breakdown will be utilized as the basis for review of progress payment estimates during the initial 45 days of the Contract prior to use of the approved Schedule of Values.
3. The Contractor shall revise the schedule and cost breakdown according to the comments received from the Engineer and submit an electronic PDF of the revised schedule and cost breakdown to the Engineer within ten calendar days after receipt. The reviewed schedule will then be considered the "Approved 45 Day Preliminary Construction Schedule."

B. Detailed Construction Network

1. The Detailed Construction Network in precedence format shall be a computer-generated and computer-drawn schedule analysis.
2. A Detailed Construction Network represents the Contractor's best judgment of how it shall prosecute and complete the work in compliance with the Contract Milestone Dates and any other Specific Dates stipulated in the Contract Documents.
3. The identity and duration of all Activities to be included in this Construction Plan. Activities shall meet the following criteria:
 - a. Activities shall be numbered, and their descriptions shall be clear and concise. Where applicable, descriptions shall include quantities of work.
 - b. Activities shall be coded with sufficient detail to allow identification of the Activity as to type of work, work responsibility, interfacing of the activity with other contracts, and any other coding necessary to accurately describe the work Activity. All Activities associated with the preparation, submittal and approval of

information required by the Engineer shall be coded so they may be readily identified.

- c. Resource requirements (manhours by craft, material, equipment, services, etc.) shall be described for each Activity, in the resources dialog box.
 - d. The quantity and cost component for each Activity shall be provided. The sum of the Activity cost components shall equal the Contract Price. If the Contract calls for pay items, the Activity shall also be coded to allow identification with its respective pay item(s). Fabrication of materials and/or equipment shall be described in a separate Activity. The cost component of any fabrication Activity shall be zero.
4. The identity of long lead items and delivery dates of all major pieces of equipment or materials.
 5. The identity of any potential problems or constraints related to the implementation of the overall construction plan.
 6. All Activities included in the Preliminary Construction Network shall be included in the Detailed Construction Network.
 7. The plot of the Detailed Construction Network shall:
 - a. Show the interdependencies of the work Activities and the major points of interface or interrelation with the activities of others, including Specific Dates for completion.
 - b. Indicate conformance with the specific interim Milestone Dates specified in the Contract Documents.
 - c. Include the description and quantity of work, by Activity.
 - d. Allow for the time required for engineering, preparation, submission, and approval of submittals (including O & M Instructions), manufacturing, delivery, and installation of Contractor-furnished permanent plant materials.
 - e. Indicate required dates of delivery of Owner-furnished material and equipment. (If applicable).
 - f. Delineate the critical Path (or Paths).
 - g. Indicate all erection and installation Activities.
 - h. Indicate all testing of equipment and materials.
 - i. Indicate startup, operational demonstration, and commissioning Activities.
 - j. Be furnished in color, with necessary legend sheets, and on electronic 22-inch x 34-inch sheets.
 8. The Detailed Construction Network shall indicate late completion date for the project that is no later than the Project's required date for final completion. All Activity durations shall be given in working days. The Network shall also indicate each of the following:
 - a. Interfaces with the work of outside entities, e.g., utilities, power, any separate contractors.
 - b. Description of Activity, including Activity numbers.
 - c. Estimated duration for each Activity.
 - d. Early start date for each Activity.
 - e. Late start date for each Activity.
 - f. Early finish date for each Activity.
 - g. Late finish date for each Activity.
 - h. Float available for each path of Activities.
 - i. Actual start date for each Activity begun.
 - j. Actual finish date for each Activity completed.

- k. The Critical Path for the project, with said path of Activities being clearly and easily recognizable on the time-scaled network diagram. The relationship between all non-critical Activities and Activities on the Critical Path shall be clearly shown on the plot of Detailed Construction Network by symbol.
 - l. The dollar value and quantity of work for each Activity, corresponding with the Schedule of Values.
 - m. The responsibility, by Contractor, Subcontractor, or Supplier, for each Activity or portion thereof.
 - n. The percentage complete for each Activity in progress or completed.

- C. The Contractor shall submit with the Detailed Construction Network, an electronic PDF a narrative description indicating anticipated allocation of the following resources and work shifts to be utilized on the project:
 - 1. Labor resources by each craft, representatives of the equipment manufacturers, and all other personnel that have been retained by the Contractor.
 - 2. Equipment resources.
 - 3. Whether work will be performed on a one, two, or three-shift basis.
 - 4. The Contractors specific understanding of the effects of seasonal weather conditions on the scheduled work, and the anticipated measures the Contractor and all sub-contractors will exercise to accommodate the known local weather conditions.

- D. It is to be expressly understood and agreed to by the Contractor that the schedule is an estimate to be revised from time-to-time as progress proceeds. The Owner does not guarantee that the Contractor can start work activities on the "early start" or "late start" dates, nor complete work activities on the "early finish" or "late finish" date as shown in the schedule, or as same may be updated or revised. The Owner or Engineer does not guarantee that Contractor can proceed at all times in the sequence established by said schedule.

- E. Within 21 calendar days following Notice to Proceed, the Contractor shall also submit an electronic PDF of its proposed Schedule of Values (using the breakdown of the computer listing of Activities) to the Engineer. The Schedule of Values shall allocate a dollar value (cost) for each Activity of the Detailed Construction Network. Each Activity cost allocation shall include labor, equipment, and material costs, including a pro rata contribution for overhead and profit. The sum of all Activity costs shall be equal to the total Contract Sum. Each Activity cost shall be coded by the Contractor, to show which subcontractor is responsible for performing the work so that subtotals for each coded activity of the work can be prepared. The Contract Pay Item for each Activity shall be indicated. The sum of costs for each Pay Item shall equal the value submitted with the Contractor's proposal.

- F. The Engineer will review the Contractor's Detailed Construction Network and Schedule of Values. The review of the Detailed Construction Network, including logic diagrams and computer generated mathematical analysis will be for compatibility with the required Project Construction and Commissioning Schedule. The review of the Schedule of Values will verify that the Schedule of Values shall, in the best judgement of the Contractor, and the Engineer, represent a fair, and equitable dollar value for each Activity on the Detailed Construction Network. The Contractor shall revise its Detailed Construction Network and Schedule of Values as required to support the Project Construction and shall resubmit them to the Engineer within ten calendar days for re-review. The Contractor's resubmittal shall include the following:

1. Plot of the Detailed Construction Network (electronic PDF).
 2. Computer disks of the Detailed Construction Network (1 set).
 3. Schedule of Values (electronic PDF).
 4. Computer listings/supporting data (electronic PDF).
- G. Within 10 calendar days following submission of an acceptable Detailed Construction Network and Schedule of Values, the Engineer will return an electronic PDF to the Contractor. The Contractor shall review these returned items and within five calendar days following the receipt from the Engineer signify its agreement by signing one copy of each document and returning it to the Engineer. Approval shall be signified by the Engineer also signing the copies of the documents which were signed and returned by the Contractor. The Contractor's approved Detailed Construction Network and Schedule of Values shall then be the documents which the Contractor shall use in planning, coordinating, and executing the work (including all activities of Subcontractors, equipment vendors and suppliers) and shall be the basis for evaluating the progress of the work and supporting requests for payment, subject to such revisions made in such schedule as are provided for in the Contract Documents.
- H. Approval by the Engineer of the Contractor's Detailed Construction Network is advisory only and shall not relieve the Contractor of the responsibility for accomplishing the work within each and every Contract-required Milestone and Completion date. Omissions and errors in the approved Detailed Construction Network shall not excuse performance which is not in compliance with the Contract. Approval by the Engineer in no way makes the Owner, Engineer an insurer of the Detailed Construction Network's success or liable for resultant time or cost overruns attributable to its shortcomings. The Owner hereby disclaims any obligation or liability by reason of the Owner, or Engineer's approval of or acquiescence to the Detailed Construction Network.
- I. Recovery Schedule
1. If certain activities shown on the Contractor's Detailed Construction Network fall behind schedule, to the extent that any of the mandatory specific or milestone or completion dates are in jeopardy, the Contractor shall prepare and submit to the Engineer a Supplementary Recovery Schedule, in a form and detail appropriate to the need, which explains and displays how the Contractor intends to reschedule those activities, in order to regain compliance with the Detailed Construction Network during the immediate subsequent pay period. Both the preparation of the Recovery Schedule, and all necessary acts under that Recovery Schedule required to recover compliance with the mandatory dates, shall be at no additional cost to the Owner.
 2. The Contractor shall do the following after determination of the requirement for a Recovery Schedule:
 - a. Within three calendar days, the Contractor shall prepare and complete the Recovery Schedule. The Contractor and major Subcontractors shall provide the Engineer with such information as is required to assist in review of the Recovery Schedule. The Recovery Schedule shall represent the Contractor's best judgment as to how it shall reorganize its work so that it may return to the Detailed Construction Network within the immediate subsequent pay period. The Recovery Schedule shall be prepared to a similar level of detail as the Detailed Construction Network and shall have a maximum duration of one month which shall coincide with the pay period.

- b. Within five calendar days, the Contractor shall participate in a conference with the Engineer to review and evaluate the Recovery Schedule. Any revisions necessary as a result of this review shall be resubmitted by the Contractor for approval within two calendar days of the conference. The approved Recovery Schedule shall then become the Schedule which the Contractor shall use in planning, coordinating, and executing the work (including all activities of subcontractors, equipment vendors, and suppliers) for its one month duration, to regain compliance with the Detailed Construction Network.
- c. Five calendar days prior to the expiration of the Recovery Schedule, the Engineer and the Contractor will meet at the job site for the monthly update and to evaluate the effectiveness of the Recovery Schedule, and shall determine whether the Contractor has regained compliance with the Detailed Construction Network. At the direction of the Engineer, one of the following will occur:
 - 1) If, in the opinion of the Engineer, the Contractor is still behind schedule, the Contractor shall prepare another Recovery Schedule, at the Contractor's expense, pursuant with this Paragraph, which will take effect during the immediate subsequent pay period. This schedule shall be prepared under the immediate review of the Engineer.
 - 2) If, in the opinion of the Engineer, the Contractor has sufficiently regained compliance with the Detailed Construction Network, the use of the Detailed Construction Network will be resumed.

J. Requested Time Adjustment Schedule

- 1. The updated Detailed Construction Network and accompanying reports submitted by the Contractor shall not show a completion date later than the stipulated completion date, subject to any time extensions approved by the Owner. If the Contractor believes it is entitled to an extension of the Contract Time under the provisions of the Contract Documents, the Contractor shall submit to the Engineer, with each progress payment update, a separate schedule analysis (entitled "Requested Time Adjustment Schedule") indicating suggested adjustments in the Contract Time which should, in the opinion of the Contractor, be made in accordance with the Contract Documents for time adjustments, which are due to changes, delays, or conditions occurring during the past month or previously, or which are expected or contemplated by the Contractor (whether such conditions are excusable under the Contract or are alleged to be due to Contractor or Owner fault). This separate schedule, if submitted, shall be a computer-generated and computer-drawn schedule analysis, and shall be accompanied by a formal time extension request, as required by the Contract and a detailed narrative justifying the time extension requested.
- 2. The time extension request shall include forecasts of the actual Project Completion Date, completion of any sequences of Activities required by the Owner, and a forecast of the resultant actual achievement of Milestones listed in the Contract.
- 3. To the extent any time extension requests are pending at the time of any update of the Construction Schedule, the "Requested Time Adjustment Schedule" shall also be updated to reflect any adjustments made by Contractor in the logic, sequence, or duration of any Activities, any time extensions previously granted by the Owner, and to reflect actual or expected progress, in order that the "Requested Time Adjustment Schedule" shall clearly and accurately reflect the Contractor's actual intention and proposed time adjustments.

4. Neither the Engineer or the Owner have any obligation to consider any time extension request unless the requirements of the Contract Documents are complied with. The Owner shall not be responsible or liable to the Contractor for any constructive acceleration due to failure of the Owner to grant time extensions. The Contractor's failure to perform in accordance with the approved Detailed Construction Network shall not be excused, nor be chargeable to the Owner, simply because the Contractor has submitted time extension requests or the "Requested Time Adjustment Schedule."

K. Each request for payment submitted to Engineer for approval shall be accompanied by the individual Contractor's Progress Schedule. The Progress Schedule shall be that schedule required above. The schedule accompanying the request for payment shall indicate actual progress compared to that anticipated on each approved Contractor's Progress Schedule. If actual performance does not meet the performance as shown on the approved schedule in total or on individual line items, revise and submit evidence as to what efforts the individual Contractor will take to meet the approved schedule. Failure to submit the Progress Schedule with each request for payment shall be cause for not processing the request for payment until receipt of schedule as required above.

1.3 PROGRESS REPORTS

A. Each Prime Contractor shall provide the Engineer with a detailed progress report showing work completed the last month. Provide at each monthly progress meeting.

1.4 SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND REFERENCE SUBMITTALS

A. Definitions

1. Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the work by the Contractor or any Subcontractor to illustrate some portion of the work.
2. Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate a material, product or system for some portion of the work.
3. Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the work will be judged.
4. Reference Submittals are any technical data or submittals listed in the technical sections of the Specifications, under Reference Submittals including but not limited to test reports, surveys, special guaranties and warranties, maintenance and operating instructions, extra stock, installers' certification, material certification, and calculations.
5. Shop Drawings, Product Data, Samples, and Reference Submittals are not to be construed as Contract Documents, they are to be used by the Contractor for his convenience only.

B. General Requirements

1. There shall be no substitutions for specified products, equipment, or systems except as allowed in Division 01 Section "Product Requirements".
2. Shop Drawings and Product Data are solely the responsibility of the Contractor, and shall be checked by him. Engineer and Owner take no responsibility whatsoever for such documents submitted for review.

C. Shop Drawings

1. Prepare project specific information, drawn accurately and to scale. Do not base shop drawings on reproductions of the contract documents or standard printed data, unless otherwise permitted.
2. Only those Shop Drawings and Product Data will be reviewed:
 - a. Where details of fabrication, installation or attachment are required to supplement the Contract Documents.
 - b. Where there are deviations from the Contract Documents for any reason. (This procedure is not for the purpose of reviewing substitutions.)
 - c. Where further documentation is required to show the proposed product or system is in conformance to every requirement of a performance Specification.
 - d. Where listed under Submittals in each technical section.
3. Shop Drawings and Product Data shall be submitted in sufficient detail to permit the Reviewer to review:
 - a. That product or system is as specified or shown.
 - b. Details of fabrication, installation or attachment.
 - c. For complete conformance to each requirement of performance Specifications, line item by line item.
4. Shop drawings shall fully illustrate all requirements in the contract documents. Include the following information, as applicable:
 - a. General arrangement of each product or assembly by necessary plans, elevations and sections.
 - b. Dimensions, finishes, part numbers, location in the building and details of fabrication and installation.
 - c. Any equipment with electric motors or wiring must show wiring diagram and schematics. Lack of either will be cause for automatic rejection of the submittal.
 - d. Identification of products.
 - e. Schedules.
 - f. Compliance with specified standards.
 - g. Notation of coordination requirements.
 - h. Notation of dimensions established by field measurement.
 - i. Relationship and attachment to adjoining construction clearly indicated.
 - j. Seal and signature of professional engineer, if specified.
5. Sheet Size: Except for templates, patters, and similar full-size drawings, submit shop drawings on electronic sheets at least 8-1/2 by 11 inches, but no larger than 22 by 34 inches.
6. Format: Submit shop drawings in PDF electronic format. At the Engineer's request, submit up to 3 hard copies.

D. Product Data

1. Product Data shall include the following information, as applicable:
 - a. Manufacturer's catalog cut sheets
 - b. Manufacturer's product specifications and details
 - c. Performance characteristics
 - d. Wiring diagrams
 - e. Test data
 - f. Installation instructions
 - g. Standard color charts
 - h. Statement of compliance with specified reference standards
 - i. Testing by recognized testing agency

- j. Application of testing agency labels and seals
 - k. Notation of coordination requirements
 - l. Availabililty and delivery time information
2. Product Data shall be submitted with a cover letter stating exact product by name and number and how it complies with the Contract Documents.
 3. Format: Submit product data in PDF electronic format. At the Engineer's request, submit up to 3 hard copies.

E. Samples

1. Submit 3 identical sets for each material, finish and color required.
 - a. For unit materials (such as brick, floor or ceiling tile), provide standard size units in sufficient quantity to show the full range.
 - b. For finishes applied over large areas (such as wall covering, carpet, ceramic tile, plywood), provide 12-inch x 12-inch minimum size samples or larger, as required, to show full range or repeat pattern.
 - c. For linear products, such as door and window frames or trim pieces, submit 12-inch minimum lengths of the actual product.
2. Full-Size Samples: Where required, submit a full-size unit of a specified product as a sample. Such sample may be used in the finished work if:
 - a. It is approved for such use by Engineer.
 - b. It is protected and in first-class condition.
 - c. It matches the balance of the product used on the Project.

F. Reference Submittals

1. All calculations shall have the Professional Engineer's seal affixed, and shall be submitted prior to starting fabrication or installation. Engineer shall not be responsible for calculations of such other Professional Engineers. The Professional Engineer shall be registered in the State of Ohio.
2. Calculations, where required for the preparation of Shop Drawings, shall be submitted with those Shop Drawings and not as a separate submittal. Shop Drawings submitted without calculation backup sheets will be returned unreviewed.

G. Submittal Process

1. As soon as practical after executing the Contract, or as required by other Contract Documents, request from each Subcontractor and submit properly processed and identified items as required in the Specifications.
 - a. Late or untimely submittal of information shall not be cause to reduce Engineer's review time, to accept lower quality, or to delay the project completion.
2. Contractor shall be solely responsible for scheduling and coordinating of submittals among Subcontractors.
3. Allow a minimum of 14 working days for processing (from the date the Reviewer receives submittal until the date he sends it back) and sufficient time for proper handling, review, fabrication and delivery. If many items are submitted simultaneously, substantially more time for processing shall be required if Engineer so determines.
4. Send a separate Transmittal Letter with each submittal by specification number, using the form provided by the Engineer. List and identify each item on the Transmittal Letter. Include Engineer's project identification number and other requested information on the transmittal letter or on the submittal being sent.

5. When Shop Drawings are revised and resubmitted, all the revised, added and/or deleted items since the previous submittal must be circled by the submitter.
6. The entire submittal of Shop Drawings will be returned unreviewed when revised, added and/or deleted items have not been circled.
7. Shop Drawings that are submitted for reference as an aid to review another portion of the work will not be reviewed.

H. Form of Submittal

1. Shop Drawings shall be submitted in PDF electronic format. The sheet size of the electronic PDF shall generally be 22-inch x 34-inch or 11-inch x 17-inch and shall be filled completely to minimize the number of sheets.
2. Submittals for Product Data shall be submitted in PDF electronic format. The sheet size of the electronic PDF shall generally be 8-1/2-inch x 11-inch.
 - a. Provide minimum blank space of 3-inch x 8-1/2-inch on each submittal for review stamps of Contractor and Engineer.
 - b. When submitting product data, submit only catalog pages showing the item to be furnished and identify the item on the page and on a separate cover letter stating how it complies with the Contract Documents.
3. Where Samples are requested, submit three complete sets of the sizes indicated.
4. Mark each item with the same identifying number used on the Transmittal Letter and include the following information:
 - a. Project name and number
 - b. Contractor's name, address and telephone number
 - c. Subcontractor's name, address and telephone number
 - d. Supplier's name, address and telephone number
 - e. Date of submittal
 - f. Specification section number or Drawing number
 - g. Status (new or prior submittal date and number)

I. Contractor's Check

1. Upon receipt of submittals, check each item for:
 - a. Conformance to submittal requirements
 - b. Conformance of materials and details to the Contract Documents
 - c. Accuracy of all measurements
 - d. Field construction criteria related thereto
2. Reject items which do not conform to these requirements and return them to the originator with an explanation for the rejection. Do not submit rejected items to Engineer.
 - a. Do not submit Shop Drawings, Product Data, or Samples that are not requested in the Technical Sections.
3. For items approved by the Contractor, stamp each item "APPROVED" to warrant and represent approval.
4. Contractor is totally responsible for the following items which will not be reviewed by the Engineer or by Owner:
 - a. Deviations from Contract Documents.
 - b. Dimensions to be confirmed and correlated at the Site.
 - c. Fabrication process information
 - d. Means, methods, techniques, sequences, procedures of construction and construction safety.

- e. Coordination of the work of all trades.
- f. Reference Submittals

J. Engineer's Review

1. Deliver or send each item, shipping charges prepaid, to Engineer.
2. Engineer immediately will reject any item without further review if it is not:
 - a. Accompanied by a Transmittal Letter containing the required information
 - b. Submitted as a reproducible
 - c. Stamped "APPROVED" by the Contractor
3. If the submittal has been previously submitted and was marked "CONFORMS" or "CONFORMS AS NOTED" and the transmittal letter does not state that additional corrections or additions to the submittal have been made, then such submittal shall not be reviewed again.
4. Review will be for conformance to the design concept and compliance with information given in the Contract Documents. Engineer will make notations directly on the electronic PDF copy.
5. Review is intended to foresee unacceptable products and to minimize the possibility of their rejection at the Site. The review shall not be construed as:
 - a. Permitting a departure from the Contract Documents, unless specifically so noted.
 - b. Relieving the Contractor of responsibility for errors or omissions.
 - c. Acceptance of an assembly of which an approved item is a part.
 - d. Approval of variations from previously approved items.
 - e. Approval of dimensions.
6. Engineer will review all Samples. Such review will be for appearance only. Compliance with all other requirements of the Contract Documents is the responsibility of the Contractor.
7. Product Data: Only the cover letter will be stamped with the Shop Drawing stamp, and not the product data sheets.
8. Reference Submittals shall be sent to Engineer for informational purposes only.
 - a. Refer to Technical Sections under Reference Submittals for required information to be submitted.
 - b. The contents of such submittals and compliance with all other requirements of the Contract Documents shall be the responsibility of the Contractor.

K. Variations from Contract Documents

1. If Engineer determines a variation from the Contract Documents is in the best interest of the Owner, and it does not involve a change in the Contract price or time, he may permit such variation and stamp the item "CONFORMS".
2. Unless Engineer receives immediate written notification, he will assume the Contractor approves any variation shown.
3. If Contractor fails to mention variations from the Contract Documents, he will not be relieved of responsibility for executing the work in accordance with the Contract Documents.
4. When a variation from the Contract Documents is permitted and such variation involves corresponding adjustment in an adjacent or related item, responsibility for making and paying all costs for such adjustment rests with the Contractor requesting the original variation. Additional services required of Engineer, shall be paid for by Contractor. Payment for such additional services shall be made as follows:

- a. Owner shall compensate Engineer for such additional services and Owner shall deduct amount of such compensation from payments due to the Contractor.

L. Reviewer's Stamp and Letter of Acknowledgement

1. Each Shop Drawing, Product Data cover letter or Sample processed by Engineer (except reference submittals).
2. If the item conforms to all requirements of the Contract Documents or if the item contains permitted variations, it will be stamped "CONFORMS".
3. If the item is marked-up by the Contractor or Engineer to make it conform and such mark-ups are not extensive, it will be stamped "CONFORMS AS NOTED".
4. If the item does not conform to the Contract Documents and the variation is not permitted, or if the item is extensively marked-up, it will be stamped "DOES NOT CONFORM".
5. Except for field test reports, receipt of Reference Submittals will be acknowledged by Letter of Acknowledgement and no stamp will be placed on such submittals. Sample attached at the end of this Section.

M. Rejection and Resubmittal

1. Items which do not meet the requirements of this Section, or are stamped "DOES NOT CONFORM", will be returned for correction and resubmittal by the same process. Engineer will indicate reasons for the rejection and will retain one print or sample to check against resubmittal.
2. Any item not prepared as required by the Contract Documents or not prepared in a professional or workmanlike manner requiring excessive review time, including items that require more than 2 submittals, shall be assessed a back charge by Owner for such extra time. Payments for such additional services shall be made as follows:
 - a. Owner shall compensate Engineer for such additional services and Owner shall deduct amount of such compensation from payments due to the Contractor.
3. Make the indicated changes only, unless further change is required for conformance to the Contract Documents.
4. Direct attention on the item to all revisions. Explain all revisions, other than those requested, in detail on the transmittal form.
 - a. All revised and/or added items since the previous submittal must be circled.
 - b. The entire submittal will be returned unreviewed when revised or added items have not been circled.
5. Contractor shall be completely responsible for changes not indicated or specifically noted as revised.

N. Acceptance and Use

1. Items stamped "CONFORMS AS IS" or "CONFORMS AS NOTED" will be returned to Contractor.
2. Distribute electronic copies as required to transmit the information to all parties involved.
3. Engineer will retain conforming Shop Drawings and Product Data as well as one sample, for comparison with work installed.
4. Keep copies of each approved item on the job Site at all times for reference.
5. Retain the original electronic submittal until Final Completion of the work and turn them over to Engineer for the Owner's file.

6. Do not commence work requiring Shop Drawings, Product Data, Samples, and Reference Submittals until submittal has been processed by Engineer. Perform all work in accordance with such submittal.
7. No work shall be performed without a required submittal having the proper Engineer stamp stating "CONFORMS" or "CONFORMS AS NOTED".

1.5 QUALITY CONTROL SUBMITTALS

A. Certificates

1. Installer Qualification is required for all installers of product systems listed as requiring such in the "Submittals" paragraphs of the technical specifications. Installer Certification shall consist of written certification from the manufacturer of the product system listed certifying that the Installer is approved by the manufacturer for installing the specified product system. Submit an electronic PDF copy of certification with the Subcontractor and Material List prior to Contract signing.
2. Material Certification is required for all materials listed as requiring such in the "Submittals" paragraphs of the technical specifications. Material Certification shall consist of written certification from the manufacturer of the material listed certifying that all such material used in the work meets the requirements specified in the Contract Documents and is being utilized in conformance with the manufacturer's recommendations. Submit electronic PDF copy of certification as work progresses.
3. Surveyor's Certification
 - a. A certification shall be a written statement certifying the correctness of the data reported and sealed by a surveyor registered in the state where the project is located. A report shall consist of reduced field notes, sketches, or dimensions marked on copies of the Construction Drawings.
 - b. Contractor shall submit certifications during the construction of the Project from a registered surveyor that the critical locations and elevations of the construction are in accordance with the Contract Documents.
 - 1) Items for certification shall include, but not be limited to, all structures, pipes, utilities, and other underground and aboveground construction, such as bottom of footings, top of footings, floor elevations, elevations of pipe centerline.
 - 2) Report all deviations from the Contract Documents both critical and those that are not critical.
 - c. Report horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - d. Report location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
 - e. Reports shall be submitted timely before and after construction. For example report and certify footing locations before and immediately after construction of the footings.

B. Manufacturer's Instructions

1. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including a PDF electronic copy to the Engineer.
 - a. Maintain 1 set of complete instructions at the jobsite during installation and until completion.

2. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements.
 - a. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with the Engineer for further instructions.
 - b. Do not proceed with work without clear instructions.
3. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.6 INFORMATION REQUESTS, AND PROPOSED DEVIATIONS

- A. General: Questions which arise during construction concerning the Contract Documents and the interpretation thereof, shall be submitted in writing to Engineer for his comments. Questions that can be answered by review of the Contract Documents shall not be submitted to Engineer.
- B. Proposed Deviation
 1. Questions concerning proposed deviations from the Contract Documents to accommodate construction shall be documented and submitted to the Engineer for his review.
 - a. Such documentation shall include a proposed solution with detailed drawings and written substantiation for the proposed deviation.
 - b. This shall not be construed as a means of submitting substitutions of manufacturers, products, materials, equipment, or systems. Substitutions shall not be submitted except as permitted in Division 1 Section "Material and Equipment".
 2. Do not proceed with such deviations until written notice to proceed has been received from Engineer.
 - a. Such written notice shall not relieve Contractor from conformance to the Contract Documents.
 3. All reviews by Engineer of proposed deviations submitted by Contractor which would provide any benefit to Contractor and all reviews by Engineer of requests for deviations which are, in fact, requests for substitutions shall be paid by Contractor, even though the request may be denied, as follows:
 - a. Owner will compensate Engineer.
 - b. Owner will deduct the amount of such compensation from payments to Contractor.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 3300

SECTION 01 4100

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.1 STANDARDS, CODES AND REGULATIONS

- A. Standards, codes, and regulations published by manufacturers' associations, governmental agencies and other regulatory authorities form a part of these Specifications as minimum requirements. Such references include the latest issue and all amendments up to 60 days prior to the date of the Contract Documents.
- B. Where differences occur between the Contract Documents and such standards, the most strict requirements shall take precedence.
- C. Supply all materials and perform all work in accordance with the manufacturer's Specifications and installation procedures, and in conformance with published trade and manufacturers' association standards, unless specifically noted otherwise herein.

1.2 PERMITS

- A. Contractor shall secure and pay for all permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the work which are customarily secured after execution of the Contract and which are legally required at the time the Bids are received.
- B. If required by governmental authority, Owner will make application for permits and licenses using forms obtained and prepared by the Contractor and with all costs paid by the Contractor.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 4100

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SECTION 01 4500

QUALITY CONTROL

PART 1 GENERAL

1.1 QUALITY ASSURANCE

- A. Wind Load: Provide products designed to withstand the indicated wind load; when requested, submit substantiating data.
- B. Fire Resistance Rating: Provide materials and assemblies which have been tested and listed by UL, or other recognized authority, for the assembly shown or specified; where specified, attach label of testing authority. For oversized assemblies or assemblies similar to those tested, provide Manufacturer's certification that the assembly has been constructed of materials and methods equivalent to the tested construction.
- C. Flame Spread Rating: Provide products with the indicated flame spread rating or less; when requested, submit substantiating data. Provide materials with flame spread ratings required by code, unless a more strict requirements is specified.
- D. Proprietary Products: Where systems or assemblies of materials or equipment are indicated, obtain all primary components from the same Manufacturer, unless specifically noted otherwise.

1.2 TESTING LABORATORY

- A. The Owner will provide soil testing and concrete testing (except for concrete mix design), and testing of bolted steel connections.
- B. The Contractor shall provide all other testing services, except that which may be specifically specified otherwise in the technical sections.

1.3 INSPECTION SERVICES

- A. Perform or arrange for all inspections, tests, and approvals required in each Technical Section or by governing authority.
- B. Pay all costs unless specifically stated otherwise in the Technical Sections.
- C. Notify each inspecting authority, Engineer, and Owner 24 hours in advance of each test, inspection and approval.
- D. Keep records of each test, inspection and approval. Include the time, weather conditions, name of inspecting, testing, or approving authority, results of the test, and all other pertinent data.
- E. Submit official reports showing dates performed, test methods, results, interpretations of results, and recommended actions. Submit required copies to governing authorities, Engineer, and Owner.

- F. Provide required certificates to Engineer and Owner for the Owner's file.
- G. If Engineer determines that any work requires special inspection, testing, or approval he will, upon written authorization from Owner, instruct Contractor to order such special inspection, testing, or approval. If such special inspection or testing reveals a failure of the work to comply with requirements of the Contract Documents, Contractor shall bear all costs thereof, including compensation for additional services of Engineer; otherwise, Owner shall bear such costs, and an appropriate Change Order shall be issued.

1.4 MOCK-UPS

- A. Mock-up or Sample Panel and Test Surface
 1. Where indicated, construct a field mock-up or sample panel, using materials, finishes, colors, jointing fasteners, and methods of installation proposed for the Work.
 2. When applying materials as a finish or protective coating to other surfaces, apply to a test surface of the actual base material.
 3. Do not proceed without Engineer's approval.

1.5 CONTRACTOR'S QUALITY CONTROL

- A. Temperature and Humidity
 1. Maintain a daily log of outdoor high/low temperatures and general weather conditions. Such log shall be readily accessible to Engineer.
 2. Provide accurate outdoor and indoor thermometers at the Site.
 3. Do not install products in or on structures in temperatures or moisture conditions outside the recommended ranges.
 4. Maintain proper ambient and material temperatures and moisture conditions as required by product Manufacturers and other standards, by use of temporary heat, ventilation, construction of temporary structures, or by other approved means.
 5. If low temperatures make it impossible to continue operations safely, in spite of cold weather precautions, cease Work and notify Engineer.
 6. Where a substrate or product is recommended to be dry or a moisture content is listed for installation procedures, conform to the requirements. If actual conditions do not meet the standards, reduce moisture in products or substrate by approved artificial methods when natural processes would delay the progress of the Work.
- B. Power Characteristics
 1. Motors, starters, safety switches, pushbuttons, pull cords, internal wiring and operating devices, and low voltage wiring are the responsibility of each Contractor providing a product requiring electrical service.
 2. All conduit, wiring, and interlocking required to complete the installation are the responsibility of the Electrical Contractor.

1.6 MANUFACTURER'S FIELD SERVICES

- A. General
 1. When indicated in the technical specifications, provide a qualified technical representative at the Site to advise on the proper installation of the product.

2. Representative shall check the installation of the equipment, supervise its initial operation and initial testing and instruct operating personnel in its operation and maintenance.
3. Representative shall supervise necessary adjustments to insure satisfactory operation.
4. Some of the technical sections require a minimum number of hours or days for the Representative to remain on the Site. This time must fall within the normal construction day. If a longer time or overtime is required it shall be provided at no increase in cost to the Owner.
5. Representative shall remain on the Site or make as many return visits as necessary to insure the equipment is operating properly.
6. If the service includes coordination, calibration, etc. with another Manufacturer's connecting equipment, the Contractor shall arrange for those Representatives involved to be on the Site at the same time.
7. Where the supervision of a Representative is not called for in the technical specifications, this shall in no way relieve the Contractor of his responsibility to properly construct or install equipment or material in accordance with the Contract Documents.
8. Contractor shall make arrangements with the Representative and notify Engineer at least five days in advance of each visit.
9. Report Form: Where a Report Form is required in the Technical Specifications, the Representative shall complete and submit a "Manufacturer's Service Representative's Report" using the form attached at the end of this Section. A separate Report shall be required for each piece of equipment and each visit. Contractor shall submit 3 copies of the signed Report Form within 5 days of the visit. Contractor shall furnish all necessary copies of the attached form.

B. Training

1. There will be a maximum of 4 people to be trained at each session.
2. An outline shall be provided showing, as a minimum, the following:
 - a. Basic function.
 - b. Start-up procedures.
 - c. Normal operating procedures.
 - d. Normal maintenance.
3. The Contractor shall video tape, with audio, each session. Both sessions can be put on the same tape. There shall be a separate tape for each piece of equipment, unless otherwise noted or approved.

1.7 CONTRACTOR DESIGN RESPONSIBILITIES

- A. The design of all pre-engineered elements, assemblies, components and connections of all types not designed by the Engineer shall be the total responsibility of the Contractor. Such shall include, but shall not be limited to, structural steel, precast concrete, wall panels, windows, architectural items, mechanical items, and electrical items. Engineering required for such for which all or a portion of the necessary engineering services are performed by the Manufacturer shall be the total responsibility of the Contractor. Where the Contract Documents require the design of architectural, structural, mechanical, or electrical items by a supplier, or where a Contractor initiates a change in the design of a system or component thereof, such design shall be the total responsibility of the Contractor.

- B. All Contractor design responsibilities shall be performed by a Registered Professional Engineer, registered in the state where the project is located.
- C. Submit all calculations to Engineer for his records as a Reference Submittal prior to starting fabrication or installation of the Work. Engineer shall not review, check, or approve such submittals. Engineer will not be responsible for designs of others, including those of the Contractor, Subcontractors, and suppliers.

1.8 JOB CONDITIONS

- A. Existing Conditions
 - 1. Condition of existing Structure and Site will be maintained as far as possible by the Owner up to the time the Work commences. However, variations may occur after inspection of the premises by the Bidder, due to Owner's removal and salvage operations. Owner assumes no responsibility for actual conditions at the time Work commences.
 - 2. Execute Work in connection with the existing building, as indicated. Report any marked discrepancy between the Drawings and actual conditions at the Building to Engineer or adjustment.
 - 3. All material removed by the Contractor unless otherwise specified, becomes his property and shall be removed from the premises promptly.

1.9 FAULTY AND NON-CONFORMING WORK

- A. Faulty work or work not in conformance with the Contract Documents shall not be permitted.
- B. Remove such work or propose a remedy by means of detailed drawings and written documentation and submit such documentation to the Engineer for his comments.
- C. All costs for removal and reconstruction of such work, and additional services of the Engineer shall be paid by the Contractor. Payments for such additional services of the Engineer shall be made as follows:
 - 1. Owner will compensate Engineer.
 - 2. Owner will deduct the amount of such compensation from payments to the Contractor.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 4500

SECTION 01 4516

FIELD QUALITY CONTROL PROCEDURES

PART 1 GENERAL

1.1 FIELD MEASUREMENTS

- A. Make field measurements wherever possible for accurate fabrication of built-in or attached products. Do not delay job progress. Allow for trimming where field measurements cannot be made prior to fabrication.

1.2 LAYOUT

- A. Establish bench marks and layouts as required, from the information indicated on the Drawings. Extend these lines up through the Building as the work progresses. Each Subcontractor shall lay out his work from these references.
- B. Protect control points prior to starting site work and preserve all permanent reference points during construction.
 - 1. Make no changes or relocations without prior written notice to Engineer.
 - 2. Report to Engineer when any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations.
 - 3. Require surveyor to replace project control points which may be lost or destroyed.
 - a. Establish replacements based on original survey control.

1.3 PROJECT SURVEY REQUIREMENTS

- A. Establish lines and levels, locate and lay-out, by instrumentation and similar appropriate means:
 - 1. Site Improvements
 - a. Stakes for grading, fill and topsoil placement.
 - b. Utility slopes and invert elevations.
 - 2. Batter boards for structures.
 - 3. Building foundation, column locations and floor levels.
 - 4. Controlling lines and levels required for the mechanical and electrical trades.
- B. From time to time, verify layouts by the same methods.

1.4 RECORDS

- A. Maintain a complete, accurate log of all control and survey work as it progresses.

1.5 SUBMITTALS

- A. On request of the Engineer, submit documentation to verify the accuracy of field engineering work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 4516

SECTION 01 5000

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1 REFERENCE

- A. The requirements of Division 1 apply to the work of all other sections.

1.2 GENERAL

- A. Provide and maintain as a minimum the temporary facilities described herein. Locate all facilities where approved by Engineer and remove same at completion of the work or when otherwise directed.
- B. Comply with all laws, regulations, and safe practices.
- C. Provide temporary utilities throughout construction period as required to facilitate progress of work, to protect work, to provide safe and adequate working conditions throughout Project, to provide for public safety, and to meet all construction needs.
- D. Temporary utilities include, but are not limited to, temporary electricity, lighting, telephone, water, toilets, enclosures, signs, and traffic control.
- E. Remove all temporary utilities, repair all damage caused in installation and restore to existing condition.
- F. Codes and Standards
 - 1. National Electric Code (ANSI C1); National Electric Safety Code; Federal and State requirements; Utility company regulations; Ohio Department of Transportation.

1.3 TEMPORARY UTILITIES

- A. Monitor Temporary Utilities
 - 1. Any party designated to provide a temporary utility shall be responsible for all damage to his work or to that of other Contractors caused by a defect in such utility.
 - a. Enforce compliance with applicable codes and standards
 - b. Enforce safe practices
 - c. Prevent abuse of services and utilities
 - d. Prevent damage to finishes
 - 2. Do not allow wasteful use of consumables
 - 3. Contractor to be responsible for cost of all consumables used by Engineer during the project including copy/print paper, toner and ink cartridges.
 - 4. Contractor to be responsible for maintaining personal computer and printer during contract period. This includes all service, up to, and including, replacement of defective equipment. If the computer supplied for the Engineer's use will be unavailable for more than two days due to repair/service, a comparable computer will be supplied by the Contractor for use.

PART 2 PRODUCTS

2.1 MATERIALS

- A. May be new or used, but must be adequate for the intended purpose.
- B. Must not create unsafe or unsanitary conditions nor violate requirements of applicable Codes.
- C. Comply with applicable Federal and State regulations.

2.2 FACILITIES

A. Telephone

- 1. Permanent type phone and/or cell phone.
- 2. Number Required: One for the Engineer's field office on the same line.
- 3. Directories
 - a. Provide one alphabetical and one classified directory of telephone service company at each instrument.
 - b. Provide project directory at Engineer's field office and General Contractor's field office listing name and business telephone number of:
 - 1) Each Contractor and Subcontractor
 - 2) Each Supplier
 - 3) Engineer
 - 4) Construction Manager
 - 5) Professional consultants
 - 6) Owner
 - 7) Testing laboratories
 - 8) Regulatory agencies, with inspector's names
 - 9) Medical services:
 - a) Physicians
 - b) Hospitals
 - c) Ambulance service companies
 - 10) Fire Department
 - 11) Police Department

B. Temporary Toilets

- 1. Equipment: Standard products, meeting code requirements.
- 2. Toilet Facilities: Self ventilated portable toilets, either:
 - a. Privies
 - b. Chemical toilets
 - c. Recirculating toilets, or
 - d. Combustion toilets
- 3. Toilet Tissue: Provide at each toilet, on suitable dispenser, with adequate reserve supply. Monitor daily.

C. Field Offices

1. Contractor's Office: Provide a weathertight office of sufficient size and facilities to accommodate Contractor's field personnel, his subcontractors, job meetings, storage of field documents, layout space for Drawings, drafting table for production of As-Built Drawings.
2. Engineer's Office: Provide a weathertight office of sufficient size and facilities to accommodate Engineer's field personnel, job meetings, storage of field documents, and layout space for Drawings.

D. Project Sign

1. Provide and install a project sign, or signs, with minimum requirements as noted below.
2. The sign(s) supplied on the Project must meet the requirements of the funding agencies involved.
3. The sign shall be 4'x8', weatherproof construction and in color. It shall be securely mounted and installed in a manner to last throughout the Contract period.
4. Any permits required for the installation of the sign shall be obtained by the Contractor.
5. The sign shall contain the information shown below with the actual layout and materials being approved.

Owner:	<u>Village of Ashville, Ohio</u>
Project:	<u>Sanitary Sewer Improvements 2016 (Part B)</u>
Engineer:	<u>AECOM (Formerly URS)</u>
Contractor:	<u></u>
Funding Assistance:	<u>Ohio EPA WPCLF</u>
Contract Amount:	<u>\$</u>

E. Traffic Control Devices: Comply with the Manual of Uniform Traffic Control.

PART 3 EXECUTION

3.1 GENERAL

- A. Comply with applicable Federal and State regulations.
- B. Install work in neat and orderly manner.
- C. Make structurally, mechanically, and electrically sound throughout.
- D. Maintain to give safe, continuous services and to provide safe working conditions.
- E. Modify and extend systems as work progress requires.

3.2 FACILITIES

A. Telephones

1. Provide 2-way communication between Contractor and Engineer's field representative, either by phone or radio.

- B. Temporary Toilets
 - 1. Erect securely, anchor to prevent dislocation.
 - 2. Service as often as necessary to prevent accumulation of wastes and creation of unsanitary conditions.
 - 3. Provide the following minimum number of approved enclosed combination toilet and urinal units for construction personnel:
 - a. For less than 20 workers: 1.
 - b. For 20 or more workers: 2 per 40 workers.
 - 4. Location
 - a. Within the project site.
 - b. Secluded from public observation.
 - c. Obtain acceptance of locations by the Engineer.
 - 5. Enclosures for Toilet Facilities
 - a. Weatherproof, sightproof, sturdy temporary enclosures.
 - b. Ventilated to meet applicable Federal and State requirements.
 - c. For enclosures accommodating two or more persons, provide privacy screens for each toilet fixture.

- C. Field Offices
 - 1. General
 - a. Locate as approved by Engineer.
 - b. All offices must be tied down to resist high winds.
 - 2. Engineer's Office
 - a. Provide parking space for vehicles.
 - b. Sweep floors and dust at least once a week.
 - c. Clean windows at least once a month.
 - d. Maintain supplies, including drinking water.

- D. Project Sign: Locate sign as directed by the Engineer.

- E. Traffic Control Devices
 - 1. Contractor shall develop and submit for approval, a general traffic control plan for the project.
 - 2. Specifics of the traffic control plan shall conform to the Ohio Manual of Uniform Traffic Control Devices.
 - 3. It may be required to modify the specifics of the traffic control in order to safely protect the public

- F. Computer and Internet connection
 - 1. Provide high speed broadband ISP.

- G. Removal: Each installing Contractor shall remove his temporary utility, repair all damage caused in installation and restore to original conditions.

- H. Cost of Installation, Operation and Maintenance
 - 1. Designated Contractor (below) will provide and maintain specified temporary utilities until Date of Substantial Completion unless otherwise indicated. Pay all costs of installation, operation and maintenance of temporary utilities.
 - a. Temporary Heating: Geenal Contractor

- b. Temporary Ventilating: General Contractor
- c. Temporary Electricity: General Contractor
- d. Temporary Lighting: General Contractor
- e. Temporary Telephone: General Contractor
- f. Temporary Water: General Contractor
- g. Temporary Toilets: General Contractor
- h. Temporary Enclosures: General Contractor

I. Cost of Consumables

- 1. Designated Contractor will pay all costs of consumables for temporary utilities unless otherwise indicated.
 - a. Temporary Heating
 - 1) Heating Fuel: Each Contractor shall pay all costs of consumables for his own temporary heating requirements until the building is permanently enclosed.
 - b. Temporary Electricity
 - c. Electrical Energy: General Contractor.
 - d. Temporary Lighting
 - 1) Lamps: General Contractor.
 - e. Temporary Water
 - 1) Water: General Contractor.
 - f. Temporary Toilets
 - 1) Toilet Supplies: General Contractor.

3.3 OTHER TEMPORARY FACILITIES

- A. General: Contractor shall provide all other facilities necessary for the proper execution of the Project.
- B. Water: Water used for pressure, leak and bacteria testing of the completed Plant tanks and lines is to be provided by the Contractor.

3.4 PAYMENT

- A. Contractor's Cost: The Contractor shall pay for all temporary facilities.
- B. Owner's Cost: None.

END OF SECTION 01 5000

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SECTION 01 5173

TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. Work of this Section includes, but is not limited to:
 - 1. Preparation of a SWPPP as specified herein.
 - 2. Construction of sediment control measures (i.e., silt fence, straw bales, etc.), as required by the applicable governmental regulations and shown on the SWPPP
 - 3. Periodic cleanout of sediment traps and disposal of silt.
 - 4. Maintenance of public and private travelways in clean condition, including sweeping.
 - 5. Removal of sediment control devices.
 - 6. Temporary stabilization, including stockpiles.

1.2 QUALITY ASSURANCE

- A. Quality Control
 - 1. All pre-packaged standard products shall conform to regulatory requirements and shall have the manufacturer's certified analysis affixed to the package.
 - 2. Sediment control measures depicted on the Drawings are intended to be conceptual and be the minimum requirements to meet anticipated site conditions. These may be superseded by the requirements of the SWPPP as submitted.
 - 3. When no sediment control facility is shown on the Drawings, the Contractor shall provide and design the facility to prevent siltation of adjacent property or streams.

1.3 SCHEDULE

- A. Required sediment control facilities must be in operation prior to land-clearing and/or other construction, to ensure that sediment-laden water does not enter the natural drainage system.
- B. Sediment control measures shall be maintained in a satisfactory condition until cleaning and/or construction is completed and approved by the Engineer.
- C. Construction sequence shall be as specified on the Drawings and as specified in applicable portions of these Specifications.
- D. The implementation, maintenance, replacement and additions to sediment control measures shall be the responsibility of the Contractor.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Materials shall meet the requirements shown on the Drawings and as specified in applicable portions of these Specifications.

PART 3 - EXECUTION

3.1 GENERAL

- A. Sediment control provisions shall meet or exceed the requirements of the local agency having jurisdiction.
- B. As construction progresses and seasonal conditions dictate, more sediment control facilities may be required. It shall be the responsibility of the Contractor to address new conditions that may be created and to provide additional facilities over and above minimum requirements as may be required.
- C. Wherever possible, the Contractor shall limit grading to only those areas involved in current construction activities and shall limit the length of time of exposure and unprotected graded areas. The Contractor shall accomplish either temporary or permanent stabilization of these areas at the earliest opportunity.
- D. The Contractor shall provide all labor, materials, equipment and supervision to install erosion and sediment controls as shown on the Contract Drawings and/or specified herein, and required by the SWPPP. Work shall include, but not be limited to, excavation and shaping of existing ground, placement of silt fence, or as required to comply with the U.S. Soil Conservation Service (USSCS) requirements. Work shall include furnishing, installing and maintaining all facilities necessary to maintain compliance with the local County Erosion and Sedimentation Control Ordinance and the USSCS Handbook.
- E. The work described herein and/or noted on the Contract Drawings shall be the first work performed under this Contract and no other work shall be performed until this work is completed and ready for use. The Contractor's attention is directed to the Contract Plans, other sections of these specifications or addenda which describe the construction process schedule to be followed.
- F. The Contractor shall take all necessary precautions and measures to protect all properties from damage. He shall repair all damage caused to any public or private property, including roads, walks, curbs, utilities, trees, shrubs, plantings, etc., and shall leave each property in good condition, or at least equivalent to its condition prior to the Work.
- G. The Contractor will be responsible for the required regular inspection and maintaining the documentation of the erosion and sediment controls.

3.2 PROTECTIVE MEASURES

- A. Temporary silt fence shall be provided at the locations and in the manner shown on the Drawings.
- B. No debris or obstruction shall be left unstabilized in flood plains or stream areas beyond the period of project construction.
- C. The method of construction in flood plains shall provide for daily protection of all disturbed areas. Any cross-drainage through flood plains shall be safely channeled through disturbed areas to protect outlets.

- D. Storm drainage systems shall be kept operable and free of all excavated material.
- E. When the season permits, permanent vegetation stabilization of disturbed areas shall immediately follow the construction work. If permanent vegetative measures cannot be applied, temporary controls shall be used until the appropriate planting season.
- F. Filter cloth shall be as specified on the Contract Drawings.
- G. The Contractor shall maintain the silt fence until the project is completed and the threat of erosion and sedimentation from project construction is no longer present. Any displacement, ruptures, breaks or failure of the silt fence during the contract period shall be immediately repaired by the Contractor before resumption of construction activities with no additional cost to the Owner.
- H. The Contractor will be responsible for the complete removal of all temporary protective measures when the project is completed and the threat of erosion and sedimentation from project construction is no longer present.
- I. Additional measures required by agencies having inspection authority for sediment and erosion control not outlined herein or detailed on the Contract Drawings shall be performed by the Contractor at no additional cost to the Owner.

3.3 STORM WATER POLLUTION PREVENTION PLAN

- A. Prepare the SWPPP as outlined in this specification and Ohio EPA General Permit OHC000004. Additional guidance can be found in the ODOT Location and Design Manual Volume II – Drainage Design, the ODOT Location and Design Manual Volume III – Highway Plans and the ODNR Rainwater and Land Development Manual (Current Edition).
- B. At a minimum, the design and information requirements that must be shown on the SWPPP are as follows:
 1. Provide a site specific SWPPP designed and sealed by a Professional Engineer who is CPESC trained.
 2. Locate the required BMP for both on and off project EDA areas.
 3. Furnish quantity totals for all BMP required for the execution of the proposed plan.
 4. Locate the following a minimum of 100 feet from the water's edge of any stream, ephemeral stream, wetland, or body of water:
 - a. Concrete or asphalt plant areas.
 - b. Material and equipment staging or storage areas.
 - c. Dewatering areas.
 - d. Concrete truck wash out areas.
 - e. Construction access locations.
 - f. Vehicle fueling and refueling locations.
 5. Furnish an implementation schedule for each construction sequence.
 6. For any additional requirements, see the latest ODOT C&MS 107.19.
 7. Furnish the total EDA areas in acres and identify each drainage area (watershed) impacted by the proposed construction.
 8. Locate all slopes that will be inactive for 21 calendar days or longer.
 9. Furnish the name of the individual on site who is in charge of the SWPPP and the BMPs.
 10. Describe the type of construction activities that will be taking place.
 11. Furnish signatures of all contractors and subcontractors involved in the BMP practices

12. If there are plan sheets which meet any of the OEPA General Storm Water Permit OHC000004 requirements use that information. Design files may be furnished to the awarded Contractor in electronic form in the future.

C. After completion of the SWPPP, 2 copies shall be given to the Owner and 2 copies given to the Engineer. One copy must be retained at the construction site at all times during the construction activity.

3.4 NOTICE OF INTENT (NOI) PERMIT

A. The SWPPP must be completed before an application for the NOI Permit may be submitted to the OEPA. The Owner will submit the NOI application.

B. At least 21 days prior to any construction activity, the Contractor shall submit to the OEPA a Co-Permittee Notice of Intent for Coverage under the OEPA Storm Water Construction General Permit

C. The Owner shall provide the Contractor with a copy of the approved NOI Permit.

3.5 ENVIRONMENTAL MITIGATION MEASURES

A. Extensive environmental planning was conducted for this project. Attachment A is included as part of this specification and provides additional requirements that must be followed by the Contractor.

END OF SECTION 01 5173

SECTION 01 6000

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 DESCRIPTION

- A. Section includes general requirements for delivery, storage, handling, and installation of products.

1.2 FABRICATION

- A. Fabricate all items in the shop insofar as possible. Where items cannot be completely shop-fabricated and assembled for shipment, assemble and fit in shop, disassemble and ship. Identify parts for field assembly. Fabricate items to be straight, square, in proper alignment, and with hairline joints where joints are necessary. Pre-plan field joints to be as inconspicuous as possible.

1.3 SHOP PRIMING

- A. Shop prime or seal surfaces of all products to receive paint materials in accordance with requirements of the Contract Documents. Apply a primer or sealer compatible with the specified paint materials. If such primer is determined to be incompatible with the specified paint materials, provide a barrier coat or remove the primer and prime again as required.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Packing: Deliver products in properly identified original packages or other containers with unbroken seals and manufacturer's labels, grade marks and other means of identification in place.
- B. Shipping/Delivery
 1. Protect products during shipment to maintain the product's original characteristics.
 2. Deliver materials and equipment which will require controlled storage conditions on Site after the controlled storage provisions have been made on Site.
 3. Deliver materials, supplies, or equipment to Project site during working hours.
 4. Deliveries made during other than normal working hours must be received by an authorized agent of Contractor involved or be received by other means which shall be the sole responsibility of that Contractor.
 5. No employee of the Owner or Engineer is authorized to receive any shipment designated for this Project.
 6. The Owner or Engineer assumes no responsibility for receiving any shipment designated for this Project.
 7. Any materials delivered in the presence of Owner's or Engineer's representative shall be accounted for by the respective Contractor.
 8. Under no circumstances may shipments be directed to, or in care of, the Owner.
 9. Each Contractor, Subcontractor, manufacturer, or supplier furnishing materials to the site shall identify, ship, address, consign, etc. all such materials to the Contractor who may

be charged therewith by giving the name of the Contractor, the name and address of the Project.

C. Unloading and Acceptance

1. Deliver products in properly identified original packages or other containers with unbroken seals and manufacturer's labels, grade marks and other means of identification in place.
2. Check each item for completeness of order, physical condition and conformance to the Contract Documents. Reject products which do not conform to these requirements, or which have been damaged beyond repair or restoration to original condition as approved by Engineer.

D. Protection

1. Protect products during shipment and on Site to maintain the original product characteristics.
2. Protect all finished surfaces from damage during installation. Provide protective devices as required and as recommended by the manufacturer. Cover work subject to damage at the end of each day's work.
3. Coat concealed surfaces of metal products with a bituminous or other approved coating to prevent contact between dissimilar metals or other material which can cause deterioration.
4. Correct damage by repairing or replacing as required by Engineer. Repairing will be permitted only where the repair is undetectable and does not cause structural damage or interfere with proper functioning of the part.
5. Protect finish of installed products until Substantial Completion of the Project by use of wrappings, covers, or other approved protective devices. Remove such protection immediately prior to final cleaning.

E. On-Site Storage

1. Store hazardous products, such as paint materials, in well ventilated areas in accordance with applicable standards and governing laws.
2. Store materials off the ground and in a manner to prevent damage or intrusion of moisture or other foreign matter.
3. Cover materials which may be damaged by weather, allowing for proper circulation of air.
4. When possible, store materials inside the building or in sheds.
5. When storing materials in the building, stockpile materials in a manner which will not overload the structure.
6. Store all materials in a manner immediately accessible for inspection.
7. Store small items, such as finish hardware and other items easily stolen or vandalized, in a security area. Where possible, do not deliver such items until immediately prior to installation.

1.5 INSTALLATION STANDARDS

- A. Examination of Substrate: Examine the substrate or structure to which a product is to be applied or installed. Check the substrate or structure for proper clearances and tolerances. Tolerances are listed in each Section. Do not proceed until unsatisfactory conditions have been

corrected. Starting the work indicates acceptance of conditions and the installer assumes full responsibility for results.

B. Preparation

1. Substrate: Where products are applied to a substrate, prepare the substrate as recommended by the product manufacturer, generally as follows:
 - a. Bring substrate to a uniform surface by smoothing uneven surfaces and filling holes, cracks and low places with recommended filler or parent material.
 - b. Remove substances, such as dust, oils and other foreign matter, not compatible with the product.
 - c. Surfaces shall be dry, unless a moisture content or wetting is specified.
2. Inserts and Anchorages
 - a. Installer shall furnish built-in fastening devices for his product to the proper trade for installation as the work proceeds.
 - b. If such devices are not furnished in time to be built in, installer shall provide alternate methods for attaching his product. Submit Drawings and other required data as Reference Submittals.
3. Templates: Provide templates, diagrams and other coordinating documents to the proper Contractor, manufacturer, or supplier of related items affecting the work.
4. Dimensions
 - a. If the exact location of an item is not indicated by dimension on the Drawings or noted in the Specifications, Engineer reserves the right to determine such location in the field prior to roughing in.
 - b. If the exact dimensions of a product are not indicated, Engineer reserves the right to determine dimensions prior to ordering or fabricating the product.
 - c. Such dimensional changes shall not be a basis for changes in the Contract Sum.
 - d. Where miscellaneous devices, such as thermostats, switches, controls, grilles, pipes, or outlets of any nature are not exactly located by the Contract Documents, request such location or obtain approval of the location prior to installation. If approval has not been obtained, Engineer may require the relocation of such devices at the expense of the installer.

C. Installation

1. Install products in accordance with the manufacturer's recommendations or the requirements of trade associations, listed standards, conforming Shop Drawings, and Contract Documents. Where a conflict exists between these references, the most strict requirements govern. If printed instructions are not available, consult with the manufacturer's field representative.
2. Provide hangers, auxiliary framing, and other means for installing ceiling suspension systems, lighting fixtures, diffusers, and other equipment in ceilings to avoid ducts, piping, etc.
 - a. Suspend from structural members, such as joists or beams, and not from ducts or piping.
3. Install work in a manner which will not interfere with the proper installation of the work of other trades and to facilitate operating, servicing, and repairing.
4. Install products straight, plumb, level, and in line. Securely attach items to the substrate, using recommended adhesives, mechanical fasteners or other devices. Where holes are provided for attachment, do not field drill or cut new holes without approval of Engineer.
5. Match all finished work to the submitted Samples or Sample panels.

6. Conceal fasteners wherever possible, unless exposed fasteners are permitted or specified.
7. Weld in accordance with AWS standards for qualifications of operators and for workmanship.

1.6 PRODUCT OPTIONS AND SUBSTITUTIONS

- A. Refer to Instructions to Bidders for requirements and approval process of substitute materials, products, and systems.
- B. Manufacturers, Products, Materials, Equipment and Systems
 1. General: Where more than one manufacturer, product, material, equipment item, or system is indicated as acceptable, provide any one named. No substitutions will be permitted after signing the Contract.
 2. Contractor's Option
 - a. In many instances this Project has been designed around a specific manufacturer with other manufacturers listed as acceptable.
 - 1) Products from such other listed manufacturers will be accepted contingent upon meeting the design, appearance and functional standards established by the specified items.
 - b. If any changes to the Contract Documents or work are required to accommodate an acceptable product of one such other listed manufacturer, the Contractor whose product requires such changes shall pay all additional costs involved with no additional cost to the Owner or Engineer. Such additional costs to be paid by such Contractor shall include, but not be limited to, all additional costs required for changes in the work of such Contractor and of all other Contractors as well as all costs for additional services of the Reviewer to review such changes.
 - c. Payments for such additional services of the Reviewer shall be made as follows:
 - 1) Owner will compensate Engineer.
 - 2) Owner will deduct the amount of such compensation from payments to the Contractor.
 3. Unavailability of Product: When all of the products listed in the Contract Documents for a specified item are no longer being manufactured, or when products are not listed and all of the conforming products of manufacturers listed in the Contract Documents for a specified item are no longer being manufactured, then submit, through the Change Order process, the name of another product and manufacturer for review and approval by the Reviewer. Submit all documentation required elsewhere in the Contract Documents and as required by the Reviewer to show proof that the submittal is an equal in every respect to the item specified.
 4. Performance Specification: Where a performance is specified and no manufacturer is listed, submit through the Shop Drawing procedure the name of the manufacturer, the product proposed, and detailed information showing its characteristics.
 5. Color, Pattern, Texture: Where a choice of color, pattern, or texture is available for a specified product or item of equipment, the Reviewer will make a selection from the manufacturer's highest or best standards, unless noted otherwise in the technical sections of the Project Manual.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 6000

SECTION 01 7700

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 FINAL CLEANING

- A. At completion of the work, prior to the Owner's occupancy and prior to submittal of Application for Final Payment, perform final cleaning.
- B. Perform the following general cleaning:
 - 1. Remove from the Site all temporary facilities, construction plant, fences, scaffolding, tools and equipment, and surplus materials.
 - 2. Remove all rubbish, loose plaster, mortar drippings, extraneous construction materials, dirt and dust from electrical closets, pipe and duct shafts, chases, furred spaces, and similar unfinished spaces.
 - 3. Remove all temporary protective devices.
 - 4. Repair, patch and touch-up damaged surfaces to specified finish to match adjacent surfaces. Replace damaged materials which cannot be satisfactorily repaired.
 - 5. Broom clean paved surfaces and rake clean other surfaces of the Site.
 - 6. Remove snow and ice from access to the building.
- C. Perform the following cleaning and polishing:
 - 1. Clean all interior and exterior surfaces exposed to view:
 - a. Remove paint splatters, stains, dirt, grease, finger smudges and other marks, soiling, and foreign matter.
 - b. Remove all labels.
 - c. Remove all dust and dirt by vacuuming and washing.
 - 2. Each Contractor shall do all cleaning of finish surfaces relative to its work prior to acceptance of their work. General Contractor shall do a subsequent final cleaning including, but not limited to all glass; remove stains, spots, marks, and dirt from decorated work and finished surfaces; clean all hardware; wash all concrete, ceramic tile finishes and clean all flooring materials in accordance with Specifications prior to final acceptance by the Owner. Each Contractor shall comply with all special cleaning instructions, contained in the Specifications.
 - 3. Clean and polish finished surfaces in accordance with the manufacturer's instructions or with the special cleaning instructions in the technical sections.
 - 4. Clean visible portions of mechanical and electrical equipment and fixtures. Clean inside lighting fixtures and lenses.
- D. Perform and maintain specified cleaning of Project until the Owner's occupancy. Recleaning will not be required after the Owner's occupancy unless later operations of the Contractor make recleaning necessary.

1.2 PROJECT RECORD DOCUMENTS

- A. Record Drawings
 - 1. Maintain at the Site, for the Owner, one copy of all Drawings, Specifications, approved copies of Building Department Documents, Addenda, Change Orders, Modifications,

- Shop Drawings, Product Data and Samples in good order and marked currently to record all changes made during construction. These Record Drawings shall be available to Engineer.
2. Deliver to Engineer for the Owner's file, at the completion of the work, an accurate set of marked-up record documents, including a copy of the Project Manual and the Drawings, showing the Project, insofar as the actual construction or installation differs from the Documents. Final payment will not be made until receipt of complete Record documents.
 - a. Engineer will provide one set of Drawings and Project Manual to be specifically used for this purpose.
 3. Include Drawings for all Site, General, Plumbing, Heating, Ventilating and Air Conditioning, and Electrical Trades. Record all changes and information such as:
 - a. Elevation at bottom of foundations in relation to finished first floor
 - b. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements
 - c. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure
 - d. Changes of dimensions plan arrangement, material, and details
 - e. Changes made by Field Order or by Change Order
 - f. Details not on original Contract Drawings
 4. Note in each Specification Section the actual manufacturer's trade name, catalog number and supplier of each product incorporated into the work. Note changes made by Change Order.
 5. Maintain all such documents at the Site during each step of the work.
 6. While RFI's and RFP's can be taped to the back of the previous Drawing, the revised work must still be marked legibly on the Drawing.
 7. Electronic copy of final site plan as prepared by profession surveyor shall be submitted to Engineer. All elevations of structures at catch basins and manholes, and invert elevations shall be noted. As-built elevation point files shall be provided.

1.3 WARRANTIES AND BONDS

A. Special Guaranties and Warranties

1. General
 - a. Special guaranties and warranties are in addition to all other guaranties and warranties required elsewhere in the Contract Documents.
 - b. Definitions
 - 1) A Guaranty is a separate Contract by a third party, covering responsibility if a principal fails to perform.
 - 2) A Warranty is a principal's own assurance that he will assume stipulated responsibilities.
 - c. Submit certificates of these guaranties and warranties, properly dated and executed. Such warranty shall not preclude Contractor's liability under governing laws or the warranty specified in the General Conditions.
 - d. In the written guaranties and warranties, indicate the products and performance covered, the remedy in the event of failure of the product or process to perform as specified, and the length of the warranty and guaranty period.
 - e. Such guaranties and warranties shall run for the entire period specified to the Owner and the then current Owner, regardless of any transfer of ownership of the Project, or portions thereof, by sale, assignment, act of law, or otherwise.

2. **Manufacturer Special Warranty:** Where a manufacturer's special warranty is required in the technical specifications, manufacturer shall warrant, to the Owner and Contractor, all of his work in accordance with the requirements of the technical specifications and this Section. Provide such in writing, signed by an officer of the manufacturer, for a period commencing at the date of substantial completion and as specified in the technical specifications. Contractor shall be jointly and severally liable with manufacturer for all requirements of manufacturer's special warranty.
3. **Installer's Special Guaranty and Warranty:** Where an Installer's special guaranty and warranty is required in the technical specifications, Installer shall comply with all of the requirements set forth in the Installer Special Guaranty and Warranty form at the end of this Section. Installer shall complete and submit such form. Contractor shall be jointly and severally liable with Installer for all requirements of Installer's special guaranty and warranty.

1.4 SPARE PARTS AND MAINTENANCE MATERIALS

- A. **Extra Stock:** Where the basic unit of material supplied is in boxes, packages, cans or other containers, supply a minimum of one complete container. Where the material is yard goods, turn over all excess material (except small scraps) to the Owner for extra stock, in addition to specified amounts. In each case, supply at least one unit or item of each type, size, material and color used in the work from the same manufactured lot as the materials installed.
- B. Submit a list of all spare parts provided in a Table with the description, number of parts, specification, related piece of equipment, and location stored.

1.5 RESTORATION OF SITE

- A. Where portions of the Site, either inside or outside the Contract Limit Lines, are not designated for change or new work and become damaged during the course of construction due to operations arising from work under this Contract, repair or replace such damage in conformance with the Contract Documents for like or similar work. If the Contract Documents do not contain like or similar work, repair or replace such damaged areas as required to their original condition.

1.6 SUBSTANTIAL COMPLETION

- A. When the work is substantially complete, submit:
 1. A written notice that the work, or designated portion thereof, is substantially complete
 2. A list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all work in accordance with the Contract Documents.
- B. Engineer will then make an inspection to determine the status of completion.
- C. If Engineer determines that the work is not substantially complete, he will notify the Contractor in writing, listing the reasons.
 1. Correct all items listed and send a second written notice of substantial completion to Engineer.
 2. Engineer will reinspect the work.

- D. When Engineer determines that the work or designated portion thereof is substantially complete, he shall:
 - 1. Prepare a Certificate of Substantial Completion, accompanied by Contractor's list of items to be completed or corrected as verified and amended by the Engineer. Such certificate shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat utilities, damage to the work, and insurance, and shall fix the time within which the Contractor shall complete the items on the above lists.
 - 2. Submit the Certificate of Substantial Completion to Owner and Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.

- E. When the Owner concurs that the work is substantially complete, he will accept the Contractor's list of items to be completed or corrected as amended by the Engineer and, under terms of the Contract Documents, occupy the Project or portion thereof.

1.7 FINAL INSPECTION

- A. When the work or designated portion thereof is complete, submit written certification that:
 - 1. All items on the above list have been completed or corrected.
 - 2. Contract Documents have been reviewed
 - 3. Work has been inspected for compliance with Contract Documents
 - 4. Work has been completed in accordance with Contract Documents
 - 5. Equipment and systems have been tested in the presence of the Owner and are operational
 - 6. Work is completed and ready for final inspection

- B. Upon receipt of written notice that the work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, Engineer shall promptly make such final inspection.

- C. If Engineer considers the work incomplete or defective, he will promptly notify the Contractor in writing, listing the incomplete or defective work.
 - 1. Contractor shall take immediate steps to remedy the stated deficiencies and shall send a second written certification to Engineer that the work is complete.
 - 2. will reinspect the work.

- D. During the final inspection, demonstrate all operable equipment and other moving parts. Make all adjustments to the satisfaction of the Owner.

- E. When Engineer finds that the work is acceptable under the Contract Documents, he will request the Contractor to make closeout submittals.

1.8 REINSPECTION FEES

- A. Engineer will not be obligated for work beyond the scope of the Owner- Engineer Agreement. If Engineer is required to perform reinspection due to failure of the work to comply with the claims of status of completion made by the Contractor:
 - 1. Owner shall compensate Engineer for such Additional Services and Owner shall deduct the amount of such compensation from Final Payment to Contractor.

1.9 FINAL ADJUSTMENT OF ACCOUNTS

A. Submit a final statement of accounting with adjustments to the Contract Sum and include:

1. The original Contract Sum.
2. Additions and deductions resulting from:
 - a. Previous Change Orders.
 - b. Allowances.
 - c. Unit Prices.
 - d. Deductions for uncorrected work.
 - e. Deductions for liquidated damages.
 - f. Deductions for reinspection payments.
 - g. Other adjustments.
3. Total Contract Sum, as adjusted.
4. Previous payments.
5. Sum remaining due.

B. A final Change Order will be prepared reflecting adjustments to the Contract Sum not previously made by Change Orders.

1.10 FINAL APPLICATION FOR PAYMENT

A. Submit the final Application for Payment in accordance with requirements stated in the Conditions of the Contract.

1.11 DELIVERY OF DOCUMENTS

A. With the final Application for Payment and before the final Certificate of Payment will be issued, submit As-Built Drawings, Project Manual, and all O&M Manuals.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 7700

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SECTION 31 2319

DEWATERING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes construction dewatering.

1.2 PERFORMANCE REQUIREMENTS

- A. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.

1.3 SUBMITTALS

- A. Shop Drawings: For dewatering system. Show arrangement, locations, and details of wells and well points; locations of risers, headers, filters, pumps, power units, discharge lines, piezometers, and flow-measuring devices; and means of discharge, control of sediment, and disposal of water.
- B. Delegated-Design Submittal: For dewatering system indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning dewatering. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.5 PROJECT CONDITIONS

- A. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements, establishing exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.
 - 1. During dewatering, regularly resurvey benchmarks, maintaining an accurate log of surveyed elevations for comparison with original elevations. Promptly notify Engineer if changes in elevations occur or if cracks, sags, or other damage is evident in adjacent construction.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Provide temporary grading to facilitate dewatering and control of surface water.

- B. Monitor dewatering systems continuously.
- C. Protect and maintain temporary erosion and sedimentation controls during dewatering operations. Appropriate sediment collection methods shall be used to prevent the discharge of sediment laden water to Waters of the State. Discharge of groundwater to the lagoons may be used if approved in advance by the Water Treatment Plant Manger.
- D. 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.
- E. Before excavating below ground-water level, place system into operation to lower water to specified levels. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed or until dewatering is no longer required.
- F. Provide an adequate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Install sufficient dewatering equipment to drain water-bearing strata above and below bottom of foundations, drains, sewers, and other excavations.
 - 1. Do not permit open-sump pumping that leads to loss of fines, soil piping, subgrade softening, and slope instability.
- G. Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations.
 - 1. Maintain piezometric water level a minimum of 24 inches below surface of excavation.
- H. 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. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, restore damaged structures and foundation soils at no additional expense to Owner.
 - 1. Remove dewatering system from Project site on completion of dewatering, per Plan notes.

END OF SECTION 31 2319

SECTION 31 5000

EXCAVATION SUPPORT AND PROTECTION

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. Related Sections:
 - 1. Division 31 Section "Dewatering"

1.2 SUMMARY

- A. Section includes temporary excavation support and protection systems.

1.3 PERFORMANCE REQUIREMENTS

- A. Design, furnish, install, monitor, and maintain excavation support and protection system capable of supporting excavation sidewalls and of resisting soil and hydrostatic pressure and superimposed and construction loads.
 - 1. Delegated Design: Design excavation support and protection system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
 - 2. Prevent surface water from entering excavations by grading, dikes, or other means.
 - 3. Install excavation support and protection systems without damaging existing buildings, structures, and site improvements adjacent to excavation.
 - 4. Monitor vibrations, settlements, and movements.

1.4 ACTION SUBMITTALS

- A. Delegated-Design Submittal: For excavation support and protection system indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified land surveyor and professional engineer.
- B. Other Informational Submittals:
 - 1. Photographs or Videotape: Show existing conditions of adjacent construction and site improvements that might be misconstrued as damage caused by the absence of, the installation of, or the performance of excavation support and protection systems. Submit before Work begins.
 - 2. Record Drawings: Identifying and locating capped utilities and other subsurface structural, electrical, or mechanical conditions.
 - a. Note locations and capping depth of wells and well points.

1.6 QUALITY ASSURANCE

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to excavation support and protection system including, but not limited to, the following:
 - a. Geotechnical report.
 - b. Existing utilities and subsurface conditions.
 - c. Proposed excavations.
 - d. Proposed equipment.
 - e. Monitoring of excavation support and protection system.
 - f. Working area location and stability.
 - g. Coordination with waterproofing excavation.
 - h. Abandonment or removal of excavation support and protection system.

1.7 PROJECT CONDITIONS

- A. Interruption of Existing Utilities: Do not interrupt any utility serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility according to requirements indicated:
 - 1. Notify Engineer no fewer than two days in advance of proposed interruption of utility.
 - 2. Do not proceed with interruption of utility without Engineer's written permission.
- B. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.
 - 1. During installation of excavation support and protection systems, regularly resurvey benchmarks, maintaining an accurate log of surveyed elevations and positions for comparison with original elevations and positions. Promptly notify Architect if changes in elevations or positions occur or if cracks, sags, or other damage is evident in adjacent construction.
- C. Site Information
 - 1. Test borings have been made at the WWTP "Part A" Site and a complete report on the soil borings is bound in at the end of the Table of Contents of this Project Manual.
 - 2. The data on indicated subsurface conditions is not intended as representations or warranties of the continuity of such conditions between soil borings. It is expressly understood that the Owner and/or Engineer will not be responsible for interpretations or conclusions drawn therefrom by the Contractor. The data is made available only for the convenience of the Contractor.
 - 3. Additional test borings and other exploratory operations may be made by the Contractor at no additional expense to the Owner.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Structural Steel: ASTM A 36/A 36M, ASTM A 690/A 690M, or ASTM A 992/A 992M.
- B. Steel Sheet Piling: ASTM A 328/A 328M, ASTM A 572/A 572M, or ASTM A 690/A 690M; with continuous interlocks.

1. Corners: Site-fabricated mechanical interlock or roll-formed corner shape with continuous interlock.
- C. Wood Lagging: Lumber, mixed hardwood, nominal rough thickness of size and strength required for application.
- D. Cast-in-Place Concrete: ACI 301, of compressive strength required for application.
- E. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- F. Tiebacks: Steel bars, ASTM A 722/A 722M.

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 that could develop during excavation support and protection system operations.
 1. Shore, support, and protect utilities encountered.
- B. Install excavation support and protection systems 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. Locate excavation support and protection systems clear of permanent construction so that forming and finishing of concrete surfaces are not impeded.
- D. Monitor excavation support and protection systems daily during excavation progress and for as long as excavation remains open. Promptly correct bulges, breakage, or other evidence of movement to ensure that excavation support and protection systems remain stable.
- E. Promptly repair damages to adjacent facilities caused by installing excavation support and protection systems.

3.2 SOLDIER PILES AND LAGGING

- A. Install steel soldier piles before starting excavation. Extend soldier piles below excavation grade level to depths adequate to prevent lateral movement. Space soldier piles at regular intervals not to exceed allowable flexural strength of wood lagging. Accurately align exposed faces of flanges to vary not more than 2 inches from a horizontal line and not more than 1:120 out of vertical alignment.
- B. Install wood lagging within flanges of soldier piles as excavation proceeds. Trim excavation as required to install lagging. Fill voids behind lagging with soil, and compact.
- C. Install wales horizontally at locations indicated on Drawings and secure to soldier piles.

3.3 SHEET PILING

- A. Before starting excavation, install one-piece sheet piling lengths and tightly interlock to form a continuous barrier. Accurately place the piling, using templates and guide frames unless otherwise recommended in writing by the sheet piling manufacturer. Limit vertical offset of adjacent sheet piling to 60 inches. Accurately align exposed faces of sheet piling to vary not more than 2 inches from a horizontal line and not more than 1:120 out of vertical alignment. Cut tops of sheet piling to uniform elevation at top of excavation.

3.4 TIEBACKS

- A. Tiebacks: Drill, install, grout, and tension tiebacks. Test load-carrying capacity of each tieback and replace and retest deficient tiebacks.
 - 1. Test loading shall be observed by a qualified professional engineer responsible for design of excavation support and protection system.
 - 2. Maintain tiebacks in place until permanent construction is able to withstand lateral soil and hydrostatic pressures.

3.5 REMOVAL AND REPAIRS

- A. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and bear soil and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils or damaging structures, pavements, facilities, and utilities.
 - 1. Remove excavation support and protection systems to a minimum depth of 48 inches below overlaying construction and abandon remainder.
 - 2. Fill voids immediately with approved backfill compacted to density specified in Divisions 33 Section "Sanitary Sewerage Utilities"
 - 3. Repair or replace, as approved by Engineer, adjacent work damaged or displaced by removing excavation support and protection systems.

END OF SECTION 31 5000

SECTION 32 3113

CHAIN-LINK FENCING AND GATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND WORK

A. DESCRIPTION OF WORK

1. Provide chain-link fence as shown and indicated.

1.2 QUALITY ASSURANCE

- A. Provide chain-link fence as complete units controlled by a single source including accessories, fittings and fastenings.
- B. Standards: Chain-Link Fence Manufacturers Institute-Product Manual.
- C. Erector Qualifications: Successful completion of not less than ten (10) installations of similar size and magnitude to work required in this project.
- D. Installation: ANSII ASTM F567.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for metal fencing, fabric, and accessories.
- B. Shop Drawings: Details of fabrication and installation and footings.
- C. Material Certificates: Provide copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceed, specified requirements.
- D. Samples: As required by Engineer.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Dimensions indicated for pipe sections are outside dimensions, exclusive of coatings.
- B. Manufacturer. Subject to compliance with requirements, provide products of one of the following or approved equal:
 1. Galvanized Steel Fencing and Fabric:
 - a. Allied Tube and Conduit Corp.
 - b. American Fence Corp.
 - c. Anchor Fence, Inc.
 - d. Cyclone Fence/United States Steel Corp.

2.2 STEEL FABRIC

- A. Fabric: No.9 gage (0.148" + 0.005") size steel wires, 2" mesh, with top and bottom selvage knuckled.
 - 1. Furnish one-piece fabric widths for fencing up to 6' high.
 - 2. Fabric Finish: Zinc coated fabric: ASTM A 392, Type II, class I, 1.2 oz. / Sf. Ft., W/ zinc coating apply after weaving.

2.3 FRAMING AND ACCESSORIES

- A. Steel Framework, General: Schedule 40 galvanized steel, ASTM F1083 or Weights shown below are based on Type I Schedule 40 steel pipe.
 - 1. Finish: ASTM F1043; galvanized, with not less than 1.2 oz. zinc per sq. ft. of surface.
 - 2. Fittings and Accessories: Galvanized, ASTM A153.
- B. End, Comer and Pull Posts: Minimum sizes and weights as follows:
 - 1. Up to 6' fabric height, 2.375" 00 steel pipe, 3.65lbs. per lin. ft.
- C. Line Posts: Shall be evenly spaced at distances not to exceed 10' o.c. maximum, except on curves where a maximum of 7 feet o.c. will be required of following minimum sizes and weights, unless otherwise indicated.
 - 1. Up to 6' fabric height, 1.90" 00 steel pipe, 2.72lbs. per lin. ft.
- D. Top Rail: Manufacturer's longest lengths, with expansion type couplings, approximately 6" long, for each joint. Provide means for attaching top rail securely to each pull and end post.
 - 1. 1.66" 00 pipe, 2.27 lbs. per ft.
- E. Center or Bottom Rail: Of the same grade and quality as the top rail. Install in one piece between posts and flush with post on fabric side, using offset fittings where necessary. Center rail is not required for fences up to and including 6 feet in height. Bottom rail only required where detailed.
- F. Tension Wire: 6-gage, coated coil spring wire, metal and finish to match fabric.
 - 1. Locate at bottom of fabric.
(Locate at bottom and top of fabric.)
- G. Wire Ties: 11 gage galvanized steel to match fabric core material.
- H. Post Brace Assembly: Manufacturer's standard adjustable brace at end and gate posts and at both sides of comer and pull posts, with horizontal brace located at mid-height of fabric. Use same materials as top rail for brace, and truss to line posts with 0.375" diameter rod and adjustable tightener.
- I. Post Tops: Provide weathertight closure cap with loop to receive tension wire or toprail; one cap for each post.
- J. Stretcher Bars: One-piece lengths equal to full height of fabric, with minimum cross-section of 3/16" x 3/4". Provide one stretcher bar for each gate and end post, except where fabric is integrally woven into post.
- K. Stretcher Bars Bands: Space not over 15" o.c., to secure stretcher bars to end, comer, and pull.

- L. Concrete: Provide concrete consisting of Portland cement, ASTM C 150, aggregates ASTM C33, and clean water. Mix materials to obtain concrete with a minimum 28-day compressive strength of 2500 psi using at least 4 sacks of cement per cu. yd., 1" maximum size aggregate, maximum 4" slump, and 3% to 6% entrained air.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Do not begin installation and erection before final grading is completed, unless otherwise permitted.
- B. Verify that asphalt and concrete paving in fence location is completed and without irregularities which would adversely affect installation of fence.
- C. Do not commence work until unsatisfactory conditions have been corrected.
- D. Unless otherwise indicated, excavate hole depths approximately 3" lower than post bottom, with bottom of posts set not less than 36" below finish grade surface. Diameter of holes shall be equal to post diameter plus 8 inches, but not less than 12".
- E. Dispose of asphalt and stone base off-site. Dispose of waste excavated earth where directed on site.
- F. Setting Posts: Center and align posts in holes 3" above bottom of excavation.
 - 1. Place concrete around posts and vibrate or tamp for consolidation. Check each post for vertical and top alignment, and hold in position during placement and finishing operations.
 - 2. Extend concrete footings 2" above grade and trowel to a crown to shed water.
- G. Top Rails: Run rail continuously through post caps, bending to radius for curved runs. Provide expansion couplings as recommended by fencing manufacturer.
- H. Brace Assemblies: Install braces so posts are plumb when diagonal rod is under proper tension.
- I. Tension Wire: Install tension wires through post cap loops before stretching fabric and tie to each post cap with not less than 6 gage galvanized wire. Fasten fabric to tension wire using 11 gage galvanized steel hog rings spaced 24" o.c.
- J. Fabric: Leave approximately 2" between finish grade and bottom selvage, unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Stretch fabric between terminal posts or at intervals of 100 feet maximum whichever is less. Install fabric on security side of fence, and anchor to framework so that fabric remains in tension after pulling force is released.
- K. Stretcher Bars: Thread through or clamp to fabric 4" o.c., and secure to posts with metal bands spaced 15" o.c.
- L. Tie Wires: Use U-shaped wire, conforming to diameter of pipe to which attached, clasping pipe and fabric firmly with ends twisted at least two full turns. Bend ends of wire to minimize hazard to persons or clothing.

1. Tie fabric to line posts, with wire ties spaced 12" o.c. Tie fabric to rails and braces, with wire ties spaced 24" o.c. Tie fabric to tension wires, with hog rings spaced 24" o.c.
- M. Fasteners: Install nuts for tension bands and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.
- 3.2 ADJUST AND CLEAN
- A. Adjust brace rails and tension rods for rigid installation. Tighten hardware, fasteners and accessories. Remove excess and waste materials from project site.

END OF SECTION 32 3113

SECTION 33 1100

WATER DISTRIBUTION UTILITY PIPING

PART 1 - GENERAL

1.1 REFERENCE

- A. All applicable requirements of other portions of the Contract Documents apply to the work of this Section, including but not limited to Division 1, General Requirements.
- B. Related Sections:
 - 1. Division 31 Section "Dewatering"

1.2 DESCRIPTION OF WORK

- A. Work of this Section includes furnishing and installing a water main, and accessories associated with the piping, including all valves and fittings, service line transfers, miscellaneous concrete, pipe bedding and backfill, testing, and disinfection.
- B. Related work specified elsewhere includes, but is not limited to:
 - 1. Division 31 Section Dewatering

1.3 SUBMITTALS

- A. All submittals shall conform completely to the requirements of the Contract Documents, including all requirements set forth in Division 01, Section "Submittals".
- B. Reference Submittals
 - 1. Material Certification: Provide material certification for items listed below:
 - a. Granular backfill material.
 - b. Pipe bedding material.
 - 2. As-Built Drawings: Indicate deviations from original Contract Documents and include the following:
 - a. All buried/concealed storm and/or sanitary sewers, dimensioned from a fixed control point, including invert elevations.
 - b. All buried/concealed utility services, gas, water, telephone, electrical ducts, etc., dimensioned from a fixed control point, including depth of bury.
- C. Product Data: Provide product data for items listed below:
 - 1. Pipe.
 - 2. Joints & Fittings
 - 3. Valves.
 - 4. Gaskets.

1.4 PRODUCT HANDLING

- A. General
 - 1. Handle pipe with care as only sound, undamaged material and fittings will be accepted.

2. Store material off the ground.
3. Keep pipe interiors completely free of dirt and foreign matter.

1.5 JOB CONDITIONS

- A. General: Make connections to existing water mains and service lines as shown and required.

1.6 LOCATIONS AND VERIFICATIONS

- A. Verify at the Site all locations, elevations, grades, and utility service connections, as indicated on the Drawings and serving the Project.
- B. Locations shown on the Drawings shall be followed as closely as possible. However, exact positions shall be subject to, and adjusted to, interferences with other work.

PART 2 - PRODUCTS

2.1 WATER LINES

A. Pipe and Fittings 2 Inch and Smaller

1. Copper Tubing
 - a. Pipe: Seamless, conform to ASTM B88.
 - b. Type: Type "K" soft annealed.
 - c. Fittings: Copper brass, conform to ANSI B16.
 - d. Joints: Mueller or Ford compression, conform to AWWA C800.
 - e. Working pressure: 100 psi.
2. Polyethylene Tubing
 - a. Pipe: Conform to AWWA C901.
 - b. Joints and Fittings: Fusion, conform to ASTM D2657.
 - c. Valves: Fitted for use with polyethylene pipe.
 - d. Size: CTS-OD, SDR 9.
 - e. Thickness: Pressure Class 200 psi, minimum.
 - f. Manufacturer/Product name: Phillips Drisco Pipe or Engineer approved equal.

B. Pipe and Fittings 3 Inch and Larger

1. See Trench Details for installation requirements.
2. PVC Pipe Class 165
 - a. Manufactured in accordance with AWWA C900.
 - b. Pipe shall be supplied in Ductile Iron Pipe (DIP) sizes.
 - c. Dead Load: 8 feet of ground cover, silty sand and gravel.
 - d. Live Load: H-20.
 - e. Dimension Ratio: DR-25.
 - f. Pipe Compound: ASTM D1784 Cell Class 12454
 - g. Gaskets: ASTM F477
 - h. Integral Bell Joint: ASTM D3139
 - i. Hardware: Cor-Blue bolts or Stainless steel bolts shall be used on all fittings.
 - j. Manufacturer: JM Eagle/Blue Brute or equal.

C. Gate Valves

1. Gate valves shall be iron body resilient wedge conforming to AWWA C509 with bell joint ends suitable for pipe specified.
2. Non-rising stems, left hand open with rubber "O" rings, packing seals, and mechanical joint ends.
3. Furnish one valve wrench required to operate all valves.
4. Use for valves 12 inches and less in diameter.
 - a. Ductile iron, conforming to ASTM A536, Grade 65-45-12.
5. Design: Valves shall be Class 150B designed for 150 psi non-shock shut-off pressure.
6. Ends: Mechanical joint ends for use with ductile iron pipe.
7. Operators
 - a. Built for buried service.

D. Valve Boxes and Lids

1. Valve box shall be two-piece or three-piece cast iron, screw type, with cover marked "WATER".
2. Provide valve box and lid with each valve.
3. Drill and tap lid for post indicator assembly.

E. Miscellaneous Concrete

1. Miscellaneous concrete shall conform to ODOT Item 499.
2. Concrete shall be Class C with a compressive strength of no less than 3,000 psi at 28 days.
3. Miscellaneous concrete shall be provided for the following items:
 - a. Thrust blocking.
 - b. Concrete encasement.
 - c. Valve supports.
 - d. Concrete collars and fillets.

2.2 PIPE BEDDING AND BACKFILL

- A. Granular Backfill: State of Ohio, Department of Transportation, Construction and Material Specifications, Item 304 - Aggregate Base.
- B. Pipe Bedding: ODOT coarse aggregate, conform to AASHTO M43, size No. 57.
- C. Earth Backfill
 1. Fine sand, clayey gravel, sand-clay, silty clay, clay (soil types GM, GC, MH, ML, CH).
 2. Suitable Excavated materials.
- D. Unsuitable Materials
 1. Organic soils (soil types OL, OH, PT).
 2. Rocks larger than 6 inches in any dimension.
 3. Bricks and building debris.
 4. Frozen materials.

PART 3 - EXECUTION

3.1 TRENCHING

- A. General: Trench excavation shall follow lines and grades as indicated on the Drawings. Exact positions shall be subject to and adjusted to interferences with other work.

1. Leave trenches open until work is inspected.
2. Whenever existing items such as sewer pipes, water pipes, gas mains, or other pipes or structures are encountered in or near the lines of trenches being excavated, use proper care in preserving such items intact, and repair any damage to such items due to failure to exercise sufficient care.
3. Locate all existing utilities or other structures of critical location in advance of excavation.
4. Uncover existing pipes and cables ahead of trenching for new work.

B. Excavation and Pipe Bedding

1. Water Lines
 - a. Trench shall be excavated as per Trench Details for pressure pipes and shall be excavated to provide a minimum of 4'-0" of cover over pipe.
 - b. Pipe shall be laid in pipe bedding material compacted in layers not to exceed 6 inches in thickness with mechanical tampers.

C. Backfill and Compaction

1. Within influence of pavement per plan details, profile sheets, trenches and pits shall be backfilled to sub-grade with granular backfill compacted in 8-inch lifts, measured after compaction.
2. Elsewhere, backfill with granular backfill or earth backfill. Top 6 inches shall be topsoil.
3. Unsuitable backfill shall not be used.
4. Compaction
 - a. General: Control soil compaction during construction for compliance with the percentage of maximum density specified for each area classification.
 - b. Backfill Density Requirements:
 - 1) For trench backfill, provide not less than the following percentages of maximum density of soil material compacted at optimum moisture content, according to standard proctor ASTM D698 dry density.
 - a) Backfill around structures: Compact each 8 inch layer of granular backfill or earth backfill at 98% density with mechanical tampers.
 - b) Unpaved areas and lawn areas: Compact each 8-inch layer of granular backfill or earth backfill at 90% density for cohesionless soils, and cohesive soil material with mechanical tampers.
 - c) Pavements and Walkways: Compact each 8 inch layer of granular backfill at 98% density with mechanical tampers.
5. Dispose of excess excavated material off the site.

3.2 INSTALLATION

A. General

1. Install full lengths of pipe, where practical.
2. No more than 200' of trench shall be open at one time.
3. Make joints in accordance with manufacturer's recommendations.
4. Lay pipe in dry trench. Line may be partially backfilled, leaving joints open until after testing.
5. Plug end of pipe when not being worked.
6. Leave line clean and free of debris when complete.

B. Water Lines

1. Install water lines as shown on Trench Detail for Pressure Pipes.

2. Restrained joints may be used in lieu of thrust blocks.
3. Flush all lines as required.
4. Cor-Blue or stainless steel bolts shall be used on all fittings.

3.3 TESTING

A. General

1. Tests may be conducted on completed pipe line or any completed portion that can be isolated from other sections previously tested or not complete. The owner or owner's representative must be present to witness all testing of sanitary sewers and manholes.
2. Conform to AWWA C600, Section 4 - Hydrostatic Testing.

B. Testing Water Lines

1. Flush line to remove all dirt and debris prior to testing.
2. Test pressure to be held for two (2) hours. A calibrated water source shall be used by test pump to maintain test pressure.
3. Test pressure to be 150 psi at test gage.
4. Allowable leakage to be computed from this requirement: 0.22 U.S. gallons per 24 hour per 100 feet of pipe per inch of nominal size.
5. For copper pipe, no leakage shall be allowed.
6. If more water is used to make up leakage than is allowed, the line is to be made tight.
7. Repair all visible leaks.
8. Retesting shall be made until the requirements are met.

3.4 DISINFECTING WATER MAINS

- A. General: Disinfection of water mains shall be done in accordance with the Standard for Disinfecting Water Mains prepared by the American Water Works Association, (C651).
- B. Provide two safe total coliform samples taken 24 hours apart prior to placing the water main in service. Provide results to Ohio EPA and the Engineer.

END OF SECTION 33 1100

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SECTION 33 3000

SANITARY SEWERAGE UTILITIES

PART 1 - GENERAL

1.1 REFERENCE

- A. All applicable requirements of other portions of the Contract Documents apply to the work of this Section, including but not limited to Division 01, General Requirements.
- B. Related Sections:
 - 1. Division 31 Section "Dewatering"
 - 2. Division 31 Section "By Pass Pumping"
 - 3. Division 33 Section "Excavation Support & Protection"

1.2 DESCRIPTION OF WORK

- A. Work of this Section includes, but is not limited to:
 - 1. Sanitary sewers.
 - 2. Precast concrete manholes.
 - 3. Miscellaneous concrete.
 - 4. Pipe bedding and backfill.
 - 5. Testing.
 - 6. CCTV Inspection.

1.3 SUBMITTALS

- A. All submittals shall conform completely to the requirements of the Contract Documents, including all requirements set forth in Division 01, Section "Submittals".
- B. Reference Submittals
 - 1. Material Certification: Provide material certification for items listed below:
 - a. Granular backfill material.
 - b. Pipe bedding material.
 - 2. As-Built Drawings: Indicate deviations from original Contract Documents and include the following:
 - a. All buried/concealed storm and/or sanitary sewers, dimensioned from a fixed control point, including invert elevations.
 - b. All buried/concealed utility services, gas, water, telephone, electrical ducts, etc., dimensioned from a fixed control point, including depth of bury.
- C. Product Data: Provide product data for items listed below:
 - 1. Pipe.
 - 2. Precast concrete manholes.
 - 3. Manhole covers & frames.
 - 4. Fittings.
 - 5. Gaskets.
 - 6. Manhole base compression fittings.
 - 7. Manhole steps.

8. Chimney seals (Crextex and Mr. Manhole).

1.4 PRODUCT HANDLING

A. General

1. Handle pipe with care, as only sound, undamaged material and fittings will be accepted.
2. Keep pipe interiors completely free of dirt and foreign matter.
3. Store pipe material, fittings, and gaskets off the ground.

1.5 JOB CONDITIONS

A. General: Make connections to existing lines as shown and required.

B. Site Information

1. Test borings have been made at the WWTP "Part A" Site and a complete report on the soil borings is bound in at the end of the Table of Contents of this Project Manual.
2. The data on indicated subsurface conditions is not intended as representations or warranties of the continuity of such conditions between soil borings. It is expressly understood that the Owner and/or Engineer will not be responsible for interpretations or conclusions drawn therefrom by the Contractor. The data is made available only for the convenience of the Contractor.
3. Additional test borings and other exploratory operations may be made by the Contractor at no additional expense to the Owner.

C. Use of Explosives: The use of explosives will not be permitted.

1.6 LOCATIONS AND VERIFICATIONS

A. Verify at the Site all locations, elevations, grades, and utility service connections, as indicated on the Drawings and serving the Project.

B. Locations shown on the Drawings shall be followed as closely as possible; however, exact positions shall be subject to, and adjusted to avoid, interferences with other work. Should major difficulties prevent the installation of any part of this portion of the Project, such conditions shall be brought to the attention of the Engineer, who will determine final locations, and the Contractor shall make the installation accordingly.

1.7 UTILITY/SERVICE CONNECTIONS

A. Close coordination shall be maintained to ensure proper elevations and locations at point of final connection to existing sanitary sewers.

B. Make connection to sewers as required including any bypass pumping of sanitary flows required to perform the work.

PART 2 - PRODUCTS

2.1 SANITARY SEWER PIPE

- A. General: The Contractor shall base his bid on the following pipe material, as denoted on the plans and the Unit Price Proposal Form:
- B. Polyvinyl Chloride (PVC) Pipe for Gravity Applications
 - 1. Pipe:
 - a. Sizes up to and including 15 inches in diameter
 - 1) Less than 20 feet deep: Conform to ASTM D3034, SDR 35.
 - 2) In excess of 20 feet deep: Conform to ASTM D3034, SDR 26.
 - b. Sizes greater than 15 inches in diameter
 - 1) Less than 20 feet deep: Conform to ASTM F679, PS 46
 - 2) In excess of 20 feet deep: Conform to ASTM F679, PS 115
 - 2. Joints:
 - a. Flexible elastomeric gasket, conform to ASTM D3212.
 - 3. Gaskets:
 - a. Conform to ASTM F477.
 - 4. Fittings:
 - a. Molded or fabricated of the same material as pipe.

2.2 PRECAST CONCRETE MANHOLES

- A. Watertight to prevent inflow of surface water and infiltration of ground water.
- B. Reinforced precast concrete, conforming to ASTM C478.
- C. Joints: Resilient gaskets, conform to ASTM C443.
- D. Manhole steps:
 - 1. Polypropylene conforming to ASTM C478.
 - 2. Minimum of 3/4-inch square bars with two non-skid grooves.
 - 3. Cast in place in precast structures. Space at 12 inches to 16 inches vertically.
- E. Precast Base: Top to extend 6" minimum above crown of main sewer pipe.
- F. Precast Manhole Cone:
 - 1. Eccentric and conical in shape
 - 2. Minimum height: 32 inches
 - 3. Wall thickness: To match riser section at lower end and 8 inches at top of cone
- G. Cast iron manhole frames and covers
 - 1. ASTM A48.
 - 2. Watertight
 - 3. Shop coat with an approved asphaltic paint.
 - 4. Cast manufacturer's name on frame and cover in 1-inch letters, 1/8-inch in relief.
 - 5. Manufacturers
 - a. Neenah Foundry Co., R-11916, Type D
 - b. Or approved equal.

- H. Chimney Seals
1. Sanitary manholes located within pervious areas shall require a flexible chimney seal.
 2. Internal flexible rubber seal that prevents water infiltration between manhole frame and manhole concrete cone section. Span seal over all riser ring and masonry brick courses.
 3. Flexible Portion of Rubber Seal:
 - a. Free to allow repeated vertical or horizontal movements of the frame due to frost heave, thermal expansion or other ground movement.
 - b. High grade rubber compound conforming to ASTM C923.
 - c. Minimum 1500 psi tensile strength.
 - d. Maximum 19 percent compression set.
 - e. Hardness: Durometer 48 +/-5.
 - f. Minimum thickness: 3/16 inch.
 - g. Minimum unexpanded height: 8 inches.
 - h. Two or more pleats capable of vertical expansion of not less than 2 inches when installed.
 4. Extension used in conjunction with the sleeve to increase coverage: same material as rubber seal and designed to mechanically attach to the seal.
 5. Bands for compressing the sleeve and extensions:
 - a. 16 gauge stainless steel conforming to ASTM A240, Type 304.
 - b. Minimum width: 1-3/4 inches.
 - c. Self-locking slotted with integral tab, easily released for removal and reinstallation without damage to band.
 - d. Tools
 - 1) Provide one internal joint seal expansion tool, Critics 012-Tool-IJS.
 - 2) Provide one internal band removal tool, Cretex 012-Tool-IBR.
 - e. Manufacturer: Cretex.
- I. Pipe connections in Manhole Bases:
1. Flexible rubber compression fittings, conform to ASTM C923
 2. Style and manufacturer:
 - a. Press Wedge II by Press-Seal Gasket Corporation.
 - b. Dura-Seal II by Dura Tech Inc.
 - c. Link-Seal by Thunderline Corporation.
 - d. Kor-N-Seal by Price Brothers Company.
 - e. Or Engineer approved equal.
- J. Concrete for Cast-in-Place Manhole Bases and Flow Channels in Manholes
1. ODOT Item 499, Class C.
 2. Shape flow channel in new manholes at the fabricator. If channel cannot be shaped at the fabricator, provide at least 3 inches between the floor of the precast base and the bottom of the pipe so that final channel can be installed and shaped in the field.
- K. Miscellaneous Concrete
1. Miscellaneous concrete shall conform to the State of Ohio, Department of Transportation, Construction and Material Specifications, Item 499 – Concrete General.
 2. Concrete shall be Class C with a compressible strength of no less than 3,000 psi at 28 days.
 3. Miscellaneous concrete shall be provided for the following items:
 - a. Poured-in-place manhole bases.
 - b. Concrete encasement.

- c. Concrete collars.
- d. Modifying precast manhole bases in the field.

2.3 PIPE BEDDING AND BACKFILL

- A. Granular Backfill: State of Ohio, Department of Transportation, Construction and Material Specifications, Item 304 - Aggregate Base.
- B. Pipe Bedding: ODOT coarse aggregate, conform to AASHTO M43, size No. 57.
- C. Earth Backfill
 - 1. Fine sand, clayey gravel, sand-clay, silty clay, clay (soil types GM, GC, MH, ML, CH).
 - 2. Suitable Excavated materials.
- D. Unsuitable Materials
 - 1. Organic soils (soil types OL, OH, PT).
 - 2. Rocks larger than 6 inches in any dimension.
 - 3. Bricks and building debris.
 - 4. Frozen materials.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verify that substrate is ready to receive work and elevations are as indicated on Drawings.
- B. Beginning of installation means acceptance of existing conditions.

3.2 TRENCHING

- A. General
 - 1. Trench excavation shall follow lines and grades as indicated on the Drawings.
 - 2. Leave trenches open until work is inspected.
 - 3. Whenever existing items such as sewer pipes, storm drains, field tile, water pipes, gas mains, culverts, or other pipes or structures are encountered in or near the lines of trenches being excavated, use proper care in preserving such items intact, and repair any damage to such items due to failure to exercise sufficient care.
 - 4. Prior to beginning excavation, notify, in writing, all utilities on the project of the intended work and schedule.
 - 5. Locate all existing utilities or other structures of critical location in advance of excavation.
 - 6. Uncover existing pipes and cables ahead of trenching for new work.
- B. Excavation and Pipe Bedding
 - 1. Sanitary Sewers
 - a. Trench shall be excavated 6 inches minimum below bottom of pipe.
 - b. Pipe shall be laid in pipe bedding material which will cradle the bottom third (120 deg) of the pipe.
 - c. Place pipe bedding material above the pipe and both sides of pipe to a depth of 12 inches above the top of the pipe and compacted in layers not to exceed 6 inches in thickness with mechanical tampers.

2. Manhole Pits: Excavate to depth required, and provide solid base for construction.
3. Excavate unsatisfactory soil materials encountered that extend below the required elevations, to the additional depth as indicated by the Engineer. The Contractor shall be responsible for the first 2'-0" of undercutting. Additional excavation beyond the 2'-0", provided it is not due to the fault or neglect of the Contractor, shall be measured as indicated by the Engineer, and paid for as a change in the work. Compacted Item 304 or Item 411 backfill will be required under the bedding for undercutting in excess of 3 inches.

C. Backfill and Compaction

1. Within influence of pavement per plan details, profile sheets, trenches and pits shall be backfilled to sub-grade with granular backfill compacted in 8-inch lifts, measured after compaction.
2. Elsewhere, backfill with granular backfill or earth backfill. Top 6 inches shall be topsoil.
3. Unsuitable backfill shall not be used.
4. Compaction
 - a. General: Control soil compaction during construction for compliance with the percentage of maximum density specified for each area classification.
 - b. Backfill Density Requirements:
 - 1) For trench backfill, provide not less than the following percentages of maximum density of soil material compacted at optimum moisture content, according to standard proctor ASTM D698 dry density.
 - a) Backfill around structures: Compact each 8 inch layer of granular backfill or earth backfill at 98% density with mechanical tampers.
 - b) Unpaved areas and lawn areas: Compact each 8-inch layer of granular backfill or earth backfill at 90% density for cohesionless soils, and cohesive soil material with mechanical tampers.
 - c) Pavements and Walkways: Compact each 8 inch layer of granular backfill at 98% density with mechanical tampers.
5. Dispose of excess excavated material off the site.

3.3 INSTALLATION

A. General

1. Install full lengths of pipe, where practical.
2. No more than 200' of trench shall be open at one time.
3. Make joints in accordance with manufacturer's recommendations.
4. Lay pipe in dry trench. Line may be partially backfilled, leaving joints open until after testing.
5. Plug end of pipe when not being worked.
6. Leave line clean and free of debris when complete.
7. Perform all bypass pumping of sanitary flows as required for completion of the work.

B. Sanitary Sewers

1. Install sewers to lines and grades as indicated.
2. Make sewer connections to existing lines or structures as shown and required.
3. Lay sewer pipe with spigot end downstream.

C. Manholes

1. Shall be built as shown on Drawings.

2. The top of the wall of the manhole shall be properly leveled off with mortar to form a flat surface on which to set the cast iron frame.
3. Manholes shall be carried to proper height so that the top of casting will be set at the finish grade.
4. Manhole steps shall be cast in place in precast structures.
5. The bottom of sanitary manholes shall have a concrete trough or channel formed in to ensure a smooth flow through the manhole.

3.4 TESTING

- A. General: Tests may be conducted on completed pipe line or any completed portion that can be isolated from other sections previously tested or not complete. The owner or owner's representative must be present to witness all testing of sanitary sewers and manholes.
- B. Exfiltration Test of Sanitary Sewers
 1. This test is to be conducted when the height of the ground water table is less than 2 feet above the elevation of the inside crown of pipe at the upstream limit of the section being tested.
 2. As soon as a section of sewer has been constructed between manholes, and the manholes have been completed, suitable expandable plugs manufactured for that purpose shall be inserted in the sewer at the upstream side of both the upper and lower manholes and the section filled with water to a head of at least 2 feet above the top of the sewer pipe in the upper manhole, or 2 feet above the existing groundwater in the trench, whichever is the higher elevation.
 3. The maximum allowable exfiltration shall be 100 gallon per day per inch of diameter per mile of pipe.
 4. Contractor shall make all arrangements and pay all costs to obtain water for the test.
 5. Any section of sewer showing leakage in excess of the amounts above specified shall be repaired or replaced and retested at the expense of the Contractor.
- C. Low-Pressure Air Test
 1. In lieu of exfiltration tests, the Contractor may perform an air test.
 2. Air Test Procedure:
 - a. Plug all pipe outlets with suitable test plugs in section to be tested.
 - b. Add air slowly to the portion of the pipe installation under test until the internal air pressure is raised to 4.0 psig.
 - c. After an internal air pressure of 4.0 psig is obtained, allow at least two minutes for air temperature to stabilize, adding only the amount of air required to maintain pressure.
 - d. After the two-minute period, disconnect the air supply.
 - e. When pressure decreases to 3.5 psig, start timing with a stop watch.
 - f. Determine the time in seconds that is required for the internal air pressure to reach 2.5 psig.
 - g. Minimum permissible pressure holding times shall be as prescribed in ASTM C828, Low-Pressure Air Test of Vitrified Clay Pipe Lines; or ASTM F1417, Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air; or as recommended by the manufacturer for the type of piping materials being tested.
 3. All air tests shall be conducted with the utmost safety precautions, including but not limited to:
 - a. Bracing all plugs securely.

- b. Not allowing personnel in manholes during testing.
- c. Installing a pressure-relief system operative at 10 psi.

D. Vacuum Testing of Manholes

- 1. In lieu of a water test, all manholes shall be vacuum-tested in accordance with ASTM C 1244-93.
- 2. The test head shall be placed at the top of the manhole in accordance with the manufacturer's recommendations.
- 3. A vacuum of 10 inches of mercury shall be drawn on the manhole with the valve on the vacuum line of the test head closed and the vacuum pump shut off.
- 4. The time shall be measured for the vacuum to drop 1-inch.
- 5. The manhole shall pass if the time for the vacuum reading to drop from 10 inches of mercury to 9 inches of mercury meets or exceeds the values indicated in Table 1.
- 6. If the manhole fails the initial test, necessary repairs shall be made by an approved method.
- 7. The manhole shall then be retested until a satisfactory test is obtained.

TABLE 1
Minimum Test Times for Various Manhole Diameters

Depth (Feet)	Diameter (Inches)								
	30	33	36	42	48	54	60	66	72
	Time (Seconds)								
8	11	12	14	17	20	23	26	29	33
10	14	15	18	21	25	29	33	36	41
12	17	18	21	25	30	35	39	43	49
14	20	21	25	30	35	41	46	51	57
16	22	24	28	34	40	46	52	58	67
18	25	27	32	38	45	52	59	65	73
20	28	30	35	42	50	58	65	72	81
22	31	33	39	46	55	64	72	79	89
24	33	36	42	51	59	70	78	87	97
26	36	39	46	55	64	75	85	94	105
28	39	42	49	59	69	81	91	101	113
30	42	45	53	63	74	87	98	108	121

E. Deflection Test

- 1. A deflection test shall be made by manually pulling through the sewer a rigid ball or mandril having a diameter equal to 95% of the inside diameter of the pipe.
- 2. Deflection tests shall be performed no sooner than 30 days following completion of backfill.
- 3. All flexible pipe shall be tested for deflection.
- 4. Maximum ring deflection of pipe when backfilled shall be equal to or less than 5 percent of average inside diameter.
- 5. A copy of diameter record shall be submitted to the Engineer.
- 6. Any pipe showing deflections in excess of 5% thirty (30) days after installation shall be replaced or rerounded at no cost to the Owner.
- 7. After completing step number 6, retest the repaired area(s) in accordance with testing procedures listed in this specification, before final acceptance.

- F. Videotaping: All sanitary sewers shall be videotaped in DVD format after deflection testing and prior to acceptance of the sewers. Contractor shall submit 2 copies of the DVDs to the Owner for approval. The videotape shall remain the property of the Village. The videotape shall clearly identify the location of the camera within the sewer, date and time of videotape, and be of sufficient quality to determine the condition of the sewers. Prior to acceptance, the sewers shall be free of debris and structural defects.
- G. Manholes: All manholes shall be visually inspected for damage prior to installation with lift holes filled with non-shrink mortar.

END OF SECTION 33 3000

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SANITARY SEWER TEST DATA

Prime Contractor: _____ Date: _____

Subcontractor: _____ Project: _____

System Tested: _____ Job Number: _____

Plan Location: _____ Weather Condition: _____

Length Tested: _____

Piping

Type: _____ Diameter: _____

Type of Joints: _____ Classification: _____

Manholes

Type: _____ Size: _____

Type of Joints: _____ Pipe Connections: _____

Test Data

Type of Test: _____

Allowable Leakage: _____

Specified Test Pressure (PSI/Static Head): _____

Actual Test Pressure: Start: _____ Finish: _____

Time Start: Start: _____ Finish: _____ Duration: _____

Comments: _____

Test Results: Acceptable: Not Acceptable:

Subcontractor's Representative
(Name/Company): _____

Prime Contractor's Representative
(Name/Company): _____

Owner's Representative
(Name/Company): _____

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SECTION 33 3400

SANITARY FORCE MAINS

PART 1 - GENERAL

1.1 REFERENCE

- A. All applicable requirements of other portions of the Contract Documents apply to the work of this Section, including but not limited to Division 01 General Requirements.
- B. Related Sections:
 - 1. Division 31 Section "Dewatering"
 - 2. Division 31 Section "By Pass Pumping"
 - 3. Division 33 Section "Excavation Support & Protection"

1.2 DESCRIPTION OF WORK

- A. Work of this Section includes, but is not limited to:
 - 1. Sanitary force main.
 - 2. Plug valves.
 - 3. Combination Air Release Valve.
 - 4. Miscellaneous concrete.
 - 5. Pipe bedding and backfill.
 - 6. Testing.

1.3 SUBMITTALS

- A. All submittals shall conform completely to the requirements of the Contract Documents, including all requirements set forth in Division 01 Section "Submittal Procedures".
- B. Reference Submittals
 - 1. Material Certification: Provide material certification for items listed below:
 - a. Granular backfill materials.
 - b. Pipe bedding materials.
 - 2. As-Built Drawings: Indicate deviations from original Contract Documents and include the following:
 - a. All buried/concealed storm and/or sanitary sewers, dimensioned from a fixed control point, including invert elevations.
 - b. All buried/concealed utility services, gas, water, telephone, electrical ducts, etc., dimensioned from a fixed control point, including depth of bury.
- C. Product Data: Provide product data for items listed below:
 - 1. Pipe.
 - 2. Restrained joints.
 - 3. Fittings.
 - 4. Valves.
 - 5. Combination Air Release Valve.
 - 6. Gaskets.
 - 7. Detectable marker tape.

8. Tracer wire.

1.4 PRODUCT HANDLING

A. General

1. Handle pipe with care, as only sound, undamaged material and fittings will be accepted.
2. Store material off the ground.
3. Keep pipe interiors completely free of dirt and foreign matter.

1.5 JOB CONDITIONS

A. General: Make connections to existing sewers as shown and required.

B. Site Information

1. Test borings have been made at the WWTP "Part A" Site and a complete report on the soil borings is bound in at the end of the Table of Contents of this Project Manual.
2. The data on indicated subsurface conditions is not intended as representations or warranties of the continuity of such conditions between soil borings. It is expressly understood that the Owner and/or Engineer will not be responsible for interpretations or conclusions drawn therefrom by the Contractor. The data is made available only for the convenience of the Contractor.
3. Additional test borings and other exploratory operations may be made by the Contractor at no additional expense to the Owner.

1.6 LOCATIONS AND VERIFICATIONS

A. Verify at the Site all locations, elevations, grades, and utility service connections, as indicated on the Drawings and serving the Project.

B. Locations shown on the Drawings shall be followed as closely as possible; however, exact positions shall be subject to, and adjusted to avoid, interferences with other work. Should major difficulties prevent the installation of any part of this portion of the Project, such conditions shall be brought to the attention of the Engineer, who will determine final locations, and the Contractor shall make the installation accordingly.

PART 2 - PRODUCTS

2.1 SANITARY FORCE MAINS

A. Pipe and Fittings

1. Polyvinyl Chloride Pipe (PVC) Pressure-Rated Pipe
 - a. PVC pipe materials conform to ASTM D1784 (physical and mechanical properties).
 - 1) Pipe shall conform to AWWA C900.
 - a) Standard dimension ratio: DR 25.
 - b) Pressure class: 165.
 - c) D.I.P. size.
 - 2) Joints: Flexible elastomeric, conform to ASTM D3139.
 - a) Use restrained joints where indicated on the plans.
 - b) Restraining wedges shall be made of ductile iron; conform to ASTM A536.

- c) Retainer glands which use only set screws for restraint are not permissible.
- d) Manufacturers
 - i. Megalug by EBAA Iron Sales.
 - ii. Uni-Flange by Ford Meter Box Company
 - iii. Or Engineer approved equal.
- 3) Gaskets: Conform to ASTM F477.
 - a) Gaskets and lubricant shall be recommended and supplied by the same manufacturer as the pipe and fittings and shall be suitable for contact with septic sewage.
- 4) Color: Green.
- 5) General: Pipe shall be homogeneous throughout; free from voids, cracks, inclusions or other defects. Surfaces shall be free from nicks, scoring, scratches, and other blemishes.
- 6) Manufacturer: JM Eagle-Blue Brute, or Engineer approved equal.
- b. Fittings
 - 1) Fittings shall be ductile iron.
 - a) Full body: Conform to AWWA C110.
 - 2) Class 250 or 350.
 - 3) Asphaltic coating: Inside and outside.
 - 4) Lining: Cement-mortar lined.
 - 5) Restrained joints or concrete thrust blocks are required for all fittings. Provide a full length of pipe on both sides of the fitting.
 - 6) Working pressure rating equal to or greater than the pipe to be joined shall be standard or special as required to produce the required joints.

B. Plug Valves

- 1. Valve Construction
 - a. Non-lubricated eccentric plug type with resilient plug faces and stainless steel or nickel alloy seat.
 - b. Body and Plug Material: Cast iron, ASTM A 126-66, Class B.
 - c. Bushing Material: Teflon-lined fiberglass or stainless steel permanently lubricated upper and lower units.
 - d. Stem Seals: Adjustable Vee style packing or dual O-ring; Buna-N.
 - e. Plug Facing: Buna-A or Hycar.
 - f. Provide 100% port opening as indicated on the drawings.
 - g. Plug valves that are placed below grade shall have a direct bury rating or shall be placed in a vault.
 - h. Provide position indicator.
- 2. Manufacturer: Dezurik, Val-matic, Pratt GA Industries, or engineer approved equal.

C. Combination Vacuum Relief/Air Release Valve

- 1. Function: Allow large volume air entry thru the large diameter air inlet orifice, when vacuum occurs in a system; then close airtight, trapping air, as the system returns to positive pressure. While the large orifice is closed, the smaller size air release orifice remains open, to slowly release trapped air in a controlled manner, to prevent water hammer and excess pressure surges.
- 2. The air release valve shall operate with a compound lever mechanism, of stainless steel, actuated by a stainless steel float, designed to withstand 500 psi.

3. The air inlet valve shall have a molded (not glued) seal, for positive shutoff and plug center guided both ends, to prevent jamming. The plug shall be normally closed by means of a spring and shall open when a vacuum pressure differential exceeds 0.25 psi or less. The valve shall be rated 250 lbs. class.
4. All valve internals shall be replaceable, without removing valve from the line and the materials of construction certified, conforming to the following:
 - a. Body, float, float shaft, and hardware: 316 stainless steel
 - b. Piston stem and seat: 17-4 PH stainless steel
 - c. Elastomer seals: acrylonitrile-butadiene (NBR)
 - d. Piston stem guides: Acetal (POM)
5. Manufacturers: APCO, GA, or engineer approved equal.

D. Miscellaneous Concrete

1. Miscellaneous concrete shall conform to the State of Ohio, Department of Transportation, Construction and Material Specifications, Item 499 – Concrete General.
2. Concrete shall be Class C with a compressible strength of no less than 3,000 psi at 28 days.
3. Miscellaneous concrete shall be provided for:
 - a. Thrust blocking.
 - b. Concrete encasement.
 - c. Valve supports.
 - d. Concrete collars and fillets.

E. Detectable Marker Tape, Tracer Wire and Testing Station Access Box

1. Provide with PVC pipe or polyethylene tubing installation only
2. Product and Manufacturer:
 - a. MAGNATEC or Traceline by Thor Enterprises, Inc.
 - b. Proline Safety Products, Inc.
 - c. Copperhead Industries, LLC.
 - d. Or engineer approved equal.
3. Tracer Wire
 - a. All 10-inch force main shall be installed with 12 gauge tracer wire attached to the top of the pipe. Requirement applies to all open cut and bore pipe installations.
 - b. Extend additional loose wire in all ARV vaults to ground surface to facilitate field location service connection.
 - c. To facilitate field location tracer wire shall be connected to an encapsulated testing station access box manufactured by Copperhead Industries, or engineer approved equal. The distance between the testing stations shall be no less than 500 feet with a maximum distance 1000 feet. All testing stations shall be high traffic roadway rated.

2.2 PIPE BEDDING AND BACKFILL

- A. Granular Backfill: State of Ohio, Department of Transportation, Construction and Material Specifications, Item 304 - Aggregate Base.
- B. Pipe Bedding: ODOT coarse aggregate, conform to AASHTO M43, size No. 57.
- C. Earth Backfill
 1. Fine sand, clayey gravel, sand-clay, silty clay, clay (soil types GM, GC, MH, ML, CH).

2. Suitable Excavated materials.

D. Unsuitable Materials

1. Organic soils (soil types OL, OH, PT).
2. Rocks larger than 6 inches in any dimension.
3. Bricks and building debris.
4. Frozen materials.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verify that substrate is ready to receive work and elevations are as indicated on Drawings.
- B. Beginning of installation means acceptance of existing conditions.

3.2 TRENCHING

A. General

1. Trench excavation shall follow lines and grades as indicated on the Drawings. Exact positions shall be subject to and adjusted to interferences with other work.
2. Leave trenches open until work is inspected.
3. Whenever existing items such as sewer pipes, water pipes, gas mains, culverts, or other pipes or structures are encountered in or near the lines of trenches being excavated, use proper care in preserving such items intact, and repair any damage to such items due to failure to exercise sufficient care.
4. Prior to beginning excavation, notify, in writing, all utilities on the project of the intended work and schedule.
5. Locate all existing utilities or other structures of critical location in advance of excavation.
6. Uncover existing pipes and cables ahead of trenching for new work.

B. Excavation and Pipe Bedding

1. Sanitary Force Mains
 - a. Trench shall be excavated 6 inches below bottom of pipe.
 - b. Pipe shall be laid in pipe bedding material as shown on the Plans. The bedding material shall be knifed in around the pipe. There shall be no initial tamping of pipe bedding. Mechanical tamping shall commence at 12 inches above the top of the pipe. Provide bedding material to a depth of 12 inches above the top of the pipe. Contractor shall take care as not to damage pipe with tamper.
 - c. Pipes installed by directional boring do not require bedding material.
2. Valve Vault Pits: Excavate to depth required, and provide solid base for construction.
3. Excavate unsatisfactory soil materials encountered that extend below the required elevations, to the additional depth as indicated by the Engineer. The Contractor shall be responsible for the first 2'-0" of undercutting. Additional excavation beyond the 2'-0", provided it is not due to the fault or neglect of the Contractor, shall be measured as indicated by the Engineer, and paid for as a change in the work. Compacted Item 304 or Item 411 backfill will be required under the bedding for undercutting in excess of 3 inches

C. Backfill and Compaction

1. Within influence of pavement per plan details, profile sheets, trenches and pits shall be backfilled to sub-grade with granular backfill compacted in 8-inch lifts, measured after compaction.
2. Elsewhere, backfill with granular backfill or earth backfill. Top 6 inches shall be topsoil.
3. Unsuitable backfill shall not be used.
4. Compaction
 - a. General: Control soil compaction during construction for compliance with the percentage of maximum density specified for each area classification.
 - b. Backfill Density Requirements:
 - 1) For trench backfill, provide not less than the following percentages of maximum density of soil material compacted at optimum moisture content, according to standard proctor ASTM D698 dry density.
 - a) Backfill around structures: Compact each 8 inch layer of granular backfill or earth backfill at 98% density with mechanical tampers.
 - b) Unpaved areas and lawn areas: Compact each 8-inch layer of granular backfill or earth backfill at 90% density for cohesionless soils, and cohesive soil material with mechanical tampers.
 - c) Pavements and Walkways: Compact each 8 inch layer of granular backfill at 98% density with mechanical tampers.
5. Dispose of excess excavated material off the site.

3.3 INSTALLATION

A. General

1. Install full lengths of pipe, where practical.
2. No more than 200' of trench shall be open at one time
3. Make joints in accordance with manufacturer's recommendations.
4. Lay pipe in dry trench. Line may be partially backfilled, leaving joints open until after testing.
5. Plug end of pipe when not being worked.
6. Leave line clean and free of debris when complete.

B. Sanitary Force Main

1. Install force mains as shown on Typical Trench for Pressure Pipe Detail.
2. Restrained joints shall be provided as shown on plans.
3. Flush all lines as required.

C. Valve Vault

1. Shall be built as shown on Drawings.
2. Precast grade ring shall be installed to proper height so that the top of casting will be set at the finish grade.

3.4 TESTING

A. General: Tests may be conducted on completed pipe line or any completed portion that can be isolated from other sections previously tested or not complete. The owner or owner's representative must be present to witness all testing of sanitary sewers and manholes.

B. Testing Sanitary Force Mains

1. Plug ends of line being tested.
2. Fill line or section of line at least 24 hrs prior to testing. Allow all air to escape.

3. If no outlet is available at a high point of line, provide a tap, fitted with a corporation stop, to release air at the high point.
4. Test pressure to be held for one (1) hour. A calibrated water source shall be used by test pump to maintain test pressure.
5. Test pressure to be 150 lb/sq in. at test gage (2" pressure sewer).
6. Test pressure to be 125 lb/sq in. at test gage (1-1/2" pressure sewer).
7. Allowable leakage for ductile iron pipe to be computed from this requirement: 11.65 U.S. gal per 24 hour per mile of pipe per inch of nominal size (AWWA C600-99).
8. Allowable leakage for polyvinyl chloride pipe to be computed from this requirement: 10.5 U.S. gal per 24 hour per mile of pipe per inch of nominal size (AWWA C605-94).
9. If more water is used to make up leakage than is allowed, the line is to be made tight.
10. Retesting shall be made until the requirements are met.

END OF SECTION 33 3400

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SANITARY FORCE MAIN TEST DATA

Prime Contractor: _____ Date: _____
 Subcontractor: _____ Project: _____
 System Tested: _____ Job Number: _____
 Plan Location: _____ Weather Condition: _____
 Length Tested: _____

Piping

Type: _____ Diameter: _____
 Type of Joints: _____ Classification: _____

Manholes

Type: _____ Size: _____
 Type of Joints: _____ Pipe Connections: _____

Test Data

Type of Test: _____

Allowable Leakage: _____

Specified Test Pressure (PSI/Static Head): _____

Actual Test Pressure: Start: _____ Finish: _____
 Time Start: Start: _____ Finish: _____ Duration: _____

Comments: _____

Test Results: Acceptable: Not Acceptable:

Subcontractor's Representative
(Name/Company): _____

Prime Contractor's Representative
(Name/Company): _____

Owner's Representative
(Name/Company): _____

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SECTION 33 3435

BYPASS PUMPING

PART 1 - GENERAL

1.1 REFERENCE

- A. All applicable requirements of other portions of the Contract Documents apply to the work of this Section, including, but not limited to, Division 1, General Requirements.

1.2 DESCRIPTION OF WORK

- A. The Contractor shall provide all labor, materials and equipment necessary to bypass the sewage as required.

1.3 SUBMITTALS

- A. The Contractor shall provide for approval by the Engineer, a method of bypassing the sewage that will include but not be limited to:
 1. A recommended sequence of operations.
 2. Sketches or drawings showing locations of the bypass sewer and construction procedures for crossing streets, all required permit information, applications, fees, etc., to obtain access to the streets when required by the bypass method selected by the Contractor.
 3. Locations of manholes from which sewage is to be pumped, locations of receiving manholes, and new manholes.
 4. Method of handling traffic where streets are to be excavated.
- B. The Contractor shall submit a copy of all property owner/resident notifications to the Engineer prior to notification distribution.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 BYPASS PUMPING

- A. Bypass pumping shall be established prior to taking sewers and/or treatment units out of service.
- B. The bypass shall be made by plugging an existing upstream manhole, if necessary, and pumping the sewage into a downstream manhole or adjacent system approved by the Engineer. The pump and the temporary bypass sewer shall be of adequate capacity and size to handle the peak flow and any necessary dewatering. The bypass sewer shall be buried where crossing private access drives or public streets and shall either have temporary pavement or be securely plated. The bypass sewer may be laid over ground in all other instances. The bypass shall be a header for all bypass and dewatering pumping. Check valves shall be placed ahead of all pumping connections.

- C. The Contractor may suggest alternate methods of bypassing the sewage but, in any event, the method used shall be approved by the Engineer.
- D. Under no circumstances will the dumping of raw sewage on private property, streets and roads be allowed nor will surcharge of the sewers be allowed due to insufficient pumping.

3.2 PROPERTY OWNER AND/OR REISIDENT NOTIFICATION

- A. The Contractor shall provide 48-hour prior written notification to all property owners and or residents that may be affected by the diversion of flow in the sewer, explaining work that is to take place and its time frame. The notification shall include the approximate time when sewage cannot be received during sewer work as well as when the sewer will be available again for receiving sewage. All commercial establishments shall be provided with temporary sewer service. The means and methods shall be coordinated with the managers and the affected residents.
- B. A door hanger reminder shall be placed 24 hours prior to reducing the sanitary service.

END OF SECTION 33 3435

SECTION 33 4100

STORM UTILITY DRAINAGE PIPING

PART 1 - GENERAL

1.1 REFERENCE

- A. All applicable requirements of other portions of the Contract Documents apply to the work of this Section, including but not limited to Division 1 General Requirements.
- B. Related Sections:
 - 1. Division 31 Section "Dewatering"
 - 2. Division 31 Section "By Pass Pumping"

1.2 DESCRIPTION OF WORK

- A. Work of this Section includes, but is not limited to:
 - 1. Storm sewers.
 - 2. Precast concrete manholes.
 - 3. Catch basins.
 - 4. Curb Inlets.
 - 5. Headwalls and endwalls.
 - 6. Miscellaneous concrete.
 - 7. Pipe bedding and backfill.
 - 8. Testing

1.3 SUBMITTALS

- A. All submittals shall conform completely to the requirements of the Contract Documents, including all requirements set forth in Division 1 Section "Submittals".
- B. Reference Submittals
 - 1. Material Certification: Provide material certification for items listed below:
 - a. Granular backfill material.
 - b. Pipe bedding material.
 - 2. As-Built Drawings: Indicate deviations from original Contract Documents and include the following:
 - a. All buried/concealed storm and/or sanitary sewers, dimensioned from a fixed control point, including invert elevations.
 - b. All buried/concealed utility services, gas, water, telephone, electrical ducts, etc., dimensioned from a fixed control point, including depth of bury.
- C. Product Data: Provide product data for items listed below:
 - 1. Pipe.
 - 2. Precast concrete manholes, catch basins and Headwalls.
 - 3. Manhole covers & frames.
 - 4. Catch basin and curb inlet grates.
 - 5. Manhole steps.

1.4 PRODUCT HANDLING

A. General

1. Handle pipe with care, as only sound, undamaged material and fittings will be accepted.
2. Keep pipe interiors completely free of dirt and foreign matter.

1.5 JOB CONDITIONS

A. General: Make connections to existing lines as shown and required.

B. Site Information: Test borings and other exploratory operations may be made by the Contractor at no additional expense to the Owner.

C. Use of Explosives: The use of explosives will not be permitted.

1.6 LOCATIONS AND VERIFICATIONS

A. Verify at the Site all locations, elevations, grades, and utility service connections, as indicated on the Drawings and serving the Project.

B. Locations shown on the Drawings shall be followed as closely as possible; however, exact positions shall be subject to, and adjusted to avoid, interferences with other work. Should major difficulties prevent the installation of any part of this portion of the Project, such conditions shall be brought to the attention of the Owner, who will determine final locations, and the Contractor shall make the installation accordingly.

1.7 UTILITY/SERVICE CONNECTIONS

A. Close coordination shall be maintained to ensure proper elevations and locations at point of final connection to existing storm sewers.

B. Make connection to sewers as required including any bypass pumping of storm flows required to perform the work.

PART 2 - PRODUCTS

2.1 STORM SEWER SYSTEMS

A. Storm Sewers

1. General: The Contractor shall base his bid on the following pipe material, as denoted on the plans and the Unit Price Proposal Form:
2. Reinforced Concrete Pipe
 - a. Pipe: Conform to ASTM C76.
 - 1) RCP shall be minimum Class III.
 - 2) Class IV RCP shall be used for all 12-IN lines and areas with two feet of cover, or less.
 - b. Joints: Shall be a rubber gasket conforming to ASTM C 443.

B. Precast Concrete Manholes, Catch Basins and Curb Inlets

1. Reinforced precast concrete, conform to ASTM C478.

2. All storm sewer manhole joints shall be mortared or bitumastic and conform to ASTM C443.
3. Manhole Steps
 - a. Cast iron, ASTM A48.
 - b. M.A. Industries copolymer polypropylene plastic over 1/2-inch dia grade 60 bar.
 - c. Aluminum: New Jersey Aluminum Co., F-14-10, Alcoa or equal.
4. Cast iron manhole, catch basin, and curb inlet frames and covers: Conform to ASTM A48. All manhole covers must be supplied by the same manufacturer.
 - a. Types and lettering as indicated on the Drawings.
 - b. Manufacturers
 - 1) Neenah Foundry Co.
 - 2) Or equal.
5. Annular space between pipes and manhole components shall be filled with mortar for full thickness of manhole wall.

C. Miscellaneous Concrete

1. Miscellaneous concrete shall conform to the State of Ohio, Department of Transportation, Construction and Material Specifications, Item 499 – Concrete General.
2. Concrete shall be Class C with a compressible strength of no less than 3,000 psi at 28 days.
3. Miscellaneous concrete shall be provided for the following items:
 - a. Poured-in-place manhole bases.
 - b. Headwalls and endwalls.
 - c. Concrete encasement.
 - d. Paved gutters.
 - e. Concrete collars.
 - f. Modifying precast manhole bases in the field.
 - g. Flow channels in precast structures.
 - h. Outlet and overflow structures.

2.2 PIPE BEDDING AND BACKFILL

- A. Granular Backfill: State of Ohio, Department of Transportation (ODOT), Construction and Material Specifications, Item 304 - Aggregate Base.
- B. Pipe Bedding ODOT crushed coarse aggregate; conform to AASHTO M43, Size No. 57.
- C. Earth Backfill
 1. Fine sand, clayey gravel, sand-clay, silty clay, clay (soil types GM, GC, MH, ML, CH).
 2. Suitable Excavated materials.
- D. Unsuitable Material
 1. Organic soils (soil types OL, OH, PT).
 2. Rocks larger than 6 inches in any dimension.
 3. Bricks and building debris.
 4. Frozen materials.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verify that substrate is ready to receive work and elevations are as indicated on Drawings.
- B. Beginning of installation means acceptance of existing conditions.

3.2 TRENCHING

A. General

- 1. Trench excavation shall follow lines and grades as indicated on the Drawings.
- 2. Leave trenches open until work is inspected.
- 3. Whenever existing items, such as sewer pipes, water pipes, gas mains, culverts, or other pipes or structures, are encountered in or near the lines of trenches being excavated, use proper care in preserving such items intact, and repair any damage to such items due to failure to exercise sufficient care.
- 4. Prior to beginning excavation, notify, in writing, all utilities on the project of the intended work and schedule.
- 5. Locate all existing utilities or other structures of critical location in advance of excavation.
- 6. Uncover existing pipes and cables ahead of trenching for new work.

B. Excavation and Pipe Bedding

- 1. Storm Sewers
 - a. Trench shall be excavated 6 inches minimum below bottom of pipe.
 - b. Pipe shall be laid in pipe bedding material which will cradle the bottom third (120 deg) of the pipe.
 - c. Place pipe bedding material above the pipe and both sides of pipe to a depth of 12 inches above the top of the pipe and compacted in layers not to exceed 6 inches in thickness with mechanical tampers.
- 2. Manhole, Catch Basin & Headwall Pits: Excavate to depth required, and provide solid base for construction.
- 3. Excavate unsatisfactory soil materials encountered that extend below the required elevations, to the additional depth as indicated by the Engineer. The Contractor shall be responsible for the first 2'-0" of undercutting. Additional excavation beyond the 2'-0", provided it is not due to the fault or neglect of the Contractor, shall be measured as indicated by the Engineer, and paid for as a change in the work. Compacted Item 304 or Item 411 backfill will be required under the bedding for undercutting in excess of 3 inches.

C. Backfill and Compaction

- 1. Within influence of pavement per plan details, profile sheets, trenches and pits shall be backfilled to sub-grade with granular backfill compacted in 8-inch lifts, measured after compaction.
- 2. Elsewhere, backfill with granular backfill or earth backfill. Top 6 inches shall be topsoil.
- 3. Unsuitable backfill shall not be used.
- 4. Compaction
 - a. General: Control soil compaction during construction for compliance with the percentage of maximum density specified for each area classification.
 - b. Backfill Density Requirements:
 - 1) For trench backfill, provide not less than the following percentages of maximum density of soil material compacted at optimum moisture content, according to standard proctor ASTM D698 dry density.
 - a) Backfill around structures: Compact each 8 inch layer of granular backfill or earth backfill at 98% density with mechanical tampers.

- b) Unpaved areas and lawn areas: Compact each 8-inch layer of granular backfill or earth backfill at 90% density for cohesionless soils, and cohesive soil material with mechanical tampers.
 - c) Pavements and Walkways: Compact each 8 inch layer of granular backfill at 98% density with mechanical tampers.
5. Dispose of excess excavated material off the site.

3.3 INSTALLATION

A. General

1. Install full lengths of pipe, where practical.
2. Make joints in accordance with manufacturer's recommendations.
3. No more than 200' of trench shall be open at one time.
4. Lay pipe in dry trench. Line may be partially backfilled, leaving joints open until after testing.
5. Plug end of pipe when not being worked.
6. Leave line clean and free of debris when complete.
7. Perform all bypass pumping of storm flows as required for completion of the work.

B. Storm Sewers

1. Install sewers to lines and grades as indicated.
2. Make sewer connections to existing lines or structures as shown and required.
3. Lay sewer pipe with spigot end downstream.

C. Manholes, Catch Basins and Curb Inlets

1. Shall be built as shown on Drawings.
2. The top of the wall of the manhole or catch basin shall be properly leveled off with mortar to form a flat surface on which to set the cast iron frame.
3. Structures in pavement shall be carried to proper height so that the top of casting will be set at the finish grade. Structures outside pavement and sidewalk shall be set 1-inch above grade.
4. The space between pipes and the manhole or catch basin or curb inlet wall shall be filled with mortar or concrete to full thickness of structure.
5. Manhole steps shall be cast in place in precast structures.
6. The bottom of structures shall have concrete poured to the invert of the outlet pipe to ensure a smooth flow through the manhole, unless a sump is required per plans.

3.4 TESTING

- #### A. General: Tests may be conducted on completed pipe line or any completed portion that can be isolated from other sections previously tested or not complete. The owner or owner's representative must be present to witness all testing of storm sewers.

B. Deflection Test

1. A deflection test shall be made by pulling through the sewer a rigid ball or mandril having a diameter equal to 95% of the inside diameter of the pipe.
2. Deflection tests shall be performed no sooner than 30 days following completion of backfill.
3. All plastic (flexible) pipe shall be tested for deflection.
4. Maximum ring deflection of pipe when backfilled shall be equal to or less than 5 percent of average inside diameter.

5. A copy of diameter record shall be submitted to the Owner.
 6. Any pipe showing deflections in excess of 5% thirty (30) days after installation shall be replaced at no cost to the Owner.
- C. Videotaping: All storm sewers shall be videotaped in DVD format after deflection testing and prior to acceptance of the sewers. Contractor shall submit 2 copies of the DVDs to the Owner for approval. The videotape shall remain the property of the City. The videotape shall clearly identify the location of the camera within the sewer, date and time of videotape, and be of sufficient quality to determine the condition of the sewers. Prior to acceptance, the sewers shall be free of debris and structural defects.
- D. Manholes: All manholes shall be visually inspected for damage prior to installation with lift holes filled with non-shrink mortar.

END OF SECTION 33 4100