BID SET

Larimar Culvert Improvements

City of Willowick, OH

OPWC Funded Project No. CG18/19AD

October 2026

STATE OF OHIO
TIMOTHY
MCLAUGHLIN
E-83985
REGISTERED
PROFESSIONAL ENGINEER

0000043427

verdantas
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440.951.9000 | www.verdantas.com

CITY OF WILLOWICK OFFICIALS

ADMINISTRATION

Michael J. Vanni, Mayor/Safety Director

Goran Vrhovac, Finance Director

Todd Shannon, Service Director

Mandy Gwirtz, Law Director

Julie Kless, Director of Recreation

Timothy McLaughlin, P.E., City Engineer

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Patrick Mohorcic, Ward 1

Theresa Bisbee, Ward 2

Natalie Antosh, Ward 2

David Phares, Ward 3

Charlie Malta, Ward 3

Alyssa Moran, Clerk of Council

ADVERTISEMENT FOR BIDS/PUBLIC NOTICE TO BIDDERS

Sealed bids will be received at the office of the office of the Finance Director, Willowick City Hall, 30435 Lake Shore Boulevard, Willowick, Ohio 44095 until 12:00 p.m. November 5, 2026 and will be opened and read immediately thereafter for the

LARIMAR CULVERT IMPROVEMENTS

OPWC FUNDED PROJECT NO. CG18/19AD

OPINION OF PROBABLE CONSTRUCTION COST: $1,495,000.00

COMPLETION DATE: MAY 28, 2027

The bid specifications, drawings, plan holders list, addenda, and other bid information (**but not the bid forms**) may be viewed and/or downloaded for free via the internet at https://bids.verdantas.com . The bidder shall be responsible to check for Addenda and obtain same from the web site.

Bids must be in accordance with drawings and specifications and on forms available from Verdantas LLC at a non-refundable cost of One Hundred Twenty-Five and 00/100 Dollars ($125.00) for hard copies and Forty-Five Dollars ($45.00) for electronic files. Documents may be ordered by registering and paying online at https://bids.verdantas.com. Please contact planroom@verdantas.com or call (440) 530-2351 if you encounter any problems viewing, registering, or paying for the documents.

OHIO PREFERENCE: In accordance with Ohio Rev. Code §164.05 (A)(6), to the extent practicable, the Prime Contractor and subcontractor shall use Ohio products, materials, services, and labor in connection with this project.

STEEL PRODUCTS MADE IN THE UNITED STATES:
Domestic steel use requirements as specified in Ohio Rev. Code §153.011, https://codes.ohio.gov/ohio-revised-code/section-153.011, apply to this project.
(Load-bearing structural purposes only)

Publish: *News Herald*
October 15, 2026
October 22, 2026

TABLE OF CONTENTS

	Page No.
Title Page	i
Officials Page	ii
Advertisement for Bids/Public Notice to Bidders	iii
Table of Contents	iv - vi

SECTION 1 BID DOCUMENTS AND BID FORMS

Instructions to Bidders	BD.1 – BD.8
Prices to Include	BD.9 – BD.12

ALL BID FORMS SHALL BE COMPLETED AND SUBMITTED WITH BID

Form of Non-Collusion Affidavit	BF.1
Corporate Resolution	BF.2
Proposed Subcontractors	BF.3
Experience Record	BF.4
Insurance Agent Affidavit	BF.5
Supplemental Bond Acknowledgement	BF.6
Bid Security	BF.7
Proposal Forms	BF.8 – BF.9
OPWC Proposal Notes and EEO Certification	OPWC.BF.1 – OPWC.BF.4

SECTION 2 CONTRACT FORMS

Notice of Award	CF.1
Contract and Certificates of Fiscal Officer & Legal Counsel	CF.2 – CF.3
Contract Bond, Certificates of Insurance & Worker's Comp.	CF.4
Delinquent Personal Property Statement	CF.5
Lobbying Affidavit	CF.6
Approved Subcontractors	CF.7
Notice to Proceed	CF.8
Findings for Recovery & Notifications	N.1

SECTION 3 GENERAL CONDITIONS, EJCDC No. C-700 (2007) 1 – 68

SECTION 4 SUPPLEMENTARY CONDITIONS SC.1 – SC.8

SECTION 5 SPECIFICATIONS

DIVISION 1 - GENERAL REQUIREMENTS

011100	SUMMARY OF WORK
011419	USE OF SITE
011423	ADDITIONAL WORK, OVERTIME
012513	PRODUCT SUBSTITUTION PROCEDURES
013119	PROJECT MEETINGS
013216	CONSTRUCTION PROGRESS SCHEDULE
013223	SURVEY AND LAYOUT DATA
013233	PHOTOGRAPHIC DOCUMENTATION
013236	VIDEO MONITORING AND DOCUMENTATION
013319	FIELD TEST REPORTING
013323	SHOP DRAWINGS, PRODUCT DATA AND SAMPLES
013326	PRODUCT TESTING AND CERTIFYING
013326.01	QUALITY CONTROL PLAN
013543	ENVIRONMENTAL PROTECTION
014126	GENERAL REGULATIONS AND PERMITS
014223	INDUSTRY STANDARDS
014323	QUALIFICATIONS OF TRADESMEN
015136	TEMPORARY WATER AND DISTRIBUTION
015213	FIELD OFFICES
015213.01	FIRST AID
015526	TEMPORARY TRAFFIC CONTROL DEVICES
016600	PRODUCT HANDLING AND PROTECTION
017800	FINAL COMPLIANCE AND SUBMITTALS
017821	CLEANING AND PROTECTION
017839	PROJECT RECORDS, DRAWINGS

DIVISION 2 – EXISTING CONDITION

024119	REMOVAL OF STRUCTURES AND OBSTRUCTIONS

DIVISION 3 - CONCRETE

030000	CONCRETE WORK

DIVISION 31 - EARTHWORK

310000	EARTHWORK

DIVISION 32 - EXTERIOR

321000	PAVEMENT REPLACEMENT
321613.13	CONCRETE CURBS
321623	CONCRETE WALKS AND STAIRS

329200.19 SEEDING AND MULCHING

DIVISION - UTILITIES

330130.01 SEWER COLLECTION SYSTEM REHABILITATION DEFINITIONS
330130.03 SEWER FLOW CONTROL
330130.17 TELEVISION INSPECTION
330130.61 SEWER PIPE JOINT SEALING
330130.63 CHEMICAL SEALING MATERIALS
330130.73 SPRAY APPLIED PIPE LINING (SAPL)
330130.76 SEGMENTAL SLIPLINING WITH GRP COMPOSITES

		Page No.
SECTION 6	STANDARD SPECIFICATIONS	SS.1
SECTION 7	SPECIFIC PROJECT REQUIREMENTS	SR.1 – SR.2
SECTION 8	PREVAILING WAGE RATES	PW.1 – PW.12
	State Prevailing Wage Rate Determination Schedule	

05/26

SECTION 1
BID DOCUMENTS

INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.1 Sealed bids shall be received by the Owner at the location specified and until the time and date specified in the Advertisement for Bids/Public Notice to Bidders.

1.2 Each bid shall contain the full name and address of each person or company interested in said bid. If no other person be so interested, the Bidder shall distinctly so state the fact.

1.3 Bid forms must be completed in ink or by typewriter. Any corrections to the bid forms prior to submission must be initialed by the person signing the bid. Failure to submit any bid form(s) or other required document(s) may be cause for rejection of the bidder's bid at the sole discretion of the Owner.

1.4 Bids by Corporations must be executed in the corporate name by the President, Vice President, or other officer accompanied by evidence of authority to sign and the corporate seal must be affixed and attested by the Secretary on the Corporate Resolution form.

1.5 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature.

1.6 All names must be typed or printed below the signature.

1.7 The bid shall contain an acknowledgment of receipt of all Addenda.

1.8 If a Bidder wishes to withdraw their bid prior to the opening of bids, they shall state their purpose in writing to the Owner before the time fixed for the opening, and when reached it shall be handed to them unread.

1.9 After the opening of bids, no Bidder may withdraw their bid for a period of 60 days.

PART 2 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

2.1 Before submitting a bid, each Bidder must

A. Examine the Contract Documents thoroughly.

B. Visit the site to familiarize themselves with local conditions that may in any manner affect cost, progress, or performance of the work.

C. Familiarize themselves with Federal, State, and local laws, ordinances, rules, and regulations that may in any manner affect cost, progress, or performance of the work.

D. Study and carefully correlate Bidder's observations with the Contract Documents.

2.2 Reference is made to the Specific Project Requirements for the identification of any reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the work which have been relied upon by the Engineer in preparing the drawings and specifications. Owner will make copies of such reports available to any Bidder requesting them if not made available with the bid documents. These reports are not guaranteed as to accuracy or completeness; nor are they part of the Contract Documents. Before submitting their bid each Bidder will, at their own expense, make such additional investigations and tests as the Bidder may deem necessary to determine their bid for performance of the work in accordance with the time, price and other terms and conditions of the Contract Documents.

2.3 Upon request, the Owner will provide each Bidder access to the site to conduct such reasonable investigations and tests as each Bidder deems necessary for submission for their bid.

2.4 The lands upon which the work is to be performed, rights-of-way for access thereto, and other lands designated for use by Bidder in performing the work are identified on the Drawings.

2.5 The submission of a bid will constitute an incontrovertible representation by the Bidder that they have complied with every requirement of this section and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the work.

PART 3 ESTIMATED QUANTITIES

3.1 In Unit Price Contracts, the quantities of the work itemized in the bid are approximate only and the bidders are hereby notified that the estimated quantities made by the Engineer are merely for the guidance of the Owner in comparing on a uniform basis all bids received for the work.

3.2 The contract quantities, where itemized, are based on plan horizontal and vertical dimensions unless otherwise specified. It is the Contractor's responsibility to verify and determine actual quantities of materials such as pipe, pavement, subgrade, etc. in their ordering materials.

3.3 Payments, except for lump sum contracts and except for lump sum items in unit price contracts, will be made to the Contractor only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications.

3.4 The successful Bidder will be required to furnish the Owner with a complete breakdown of the lump sum bid items, to the satisfaction of the Engineer/Architect, before signing the Contract documents.

PART 4 CONTRACTOR'S QUALIFICATION

4.1 Bidder shall provide detailed information relating to similar projects completed within the past 5 years which demonstrates the bidder's capability, responsibility, experience, skill, and financial standing to undertake this type of project and shall include a list of all projects currently under construction including status and contact person.

4.2 Bidder shall own, have rental or lease agreements for, or otherwise have readily available any and all equipment and tools necessary for proper execution of the work. The Owner reserves the right to request lists of equipment or tools available for the project including sources.

4.3 Bidder shall provide pertinent information to the Owner relative to any pending suits or outstanding liens. If no information is provided by the Bidder, the Owner shall assume that any such suits or liens do not exist.

4.4 The Owner may require similar information on any or all subcontractors proposed by the Bidder.

4.5 Bids of corporations not chartered in the state in which the work will take place must be accompanied by proper certification that the corporation is authorized to do business in that state.

PART 5 SUBCONTRACTORS

5.1 The Bidder shall state on the appropriate bid form the names of all Subcontractors, Sub Consultants and other professional service providers proposed and the items of work they are to be assigned. All work not assigned to a Subcontractor shall be assumed by the Owner to be performed by the Bidder.

5.2 The Owner reserves the right to approve all subcontractors proposed by the Bidder. If the Owner, after due investigation, rejects the use of a proposed subcontractor, the apparent successful Bidder may either submit an acceptable substitution without increase in bid price or decline substitution and withdraw their bid without sacrificing their bid security. Any listed subcontractor to whom the Owner does not make written objection prior to award of contract, shall be deemed acceptable to the Owner.

5.3 Requests for changes of Subcontractor(s) by the Bidder after the award shall be subject to the Owner's approval and shall not change the contract bid prices. Contractor shall make all requests to add, delete or substitute a subcontractor in writing.

5.4 No contractor shall be required to employ any Subcontractor, person or organization against whom they have reasonable objection.

PART 6 BID REVIEW BY OWNER

6.1 The Owner reserves the right to reject any and all bids, to waive as an informality any and all irregularities, and to disregard all nonconforming, nonresponsive or conditional bids.

6.2 All extensions and totals of unit prices and quantities submitted as part of the bid shall be considered informal until verified by the Owner. All bids must be made on the forms contained herein and the bid prices must be written therein, in figures only. Unit prices shall be separately written for "Unit Price Labor," "Unit Price Material," and "Total Unit Price" for each item listed. Should an error in addition and/or multiplication be determined while checking the Contractor's math and verifying their total bid, the "Unit Price Labor" and the "Unit Price Material" figures shall govern in determining the correct "Total Unit Price" and the correct "Item Total."

6.3 Each bidder must bid on all Items, Alternates, Deductions, and Additions contained in the Bidding Forms. All bids not in conformity with this notice may be considered non-responsive and may be rejected.

6.4 More than one bid for the same work from an individual or entity under the same of different names will not be considered. Reasonable grounds for believing that any bidder has an interest in more than one bid for the work may be cause for disqualification of that bidder and the rejection of all bids in which the bidder has an interest. A subcontractor or supplier is not a bidder, and may submit prices to multiple bidders.

6.5 In evaluating bids, the Owner may consider:

A. The qualifications and experience of the Bidder, proposed subcontractors, and principal material suppliers as outlined in the plans and specifications.

B. Financial ability and soundness of the Bidder and proposed subcontractors.

C. Completeness of all bid forms and bid requirements.

D. Alternates and unit prices requested in the Bid Forms.

E. Unit prices or schedules of values that are or appear to be unbalanced.

F. Previous contractual experience with the Owner.

G. Whether or not the bid package complies with the prescribed requirements.

H. The proposed completion date, if applicable.

I. Any other matter allowed by law or local ordinance or resolution.

6.6 Owner may conduct further investigations as they deem necessary to assist in the evaluation of any bid and to establish the responsibility, qualifications, and financial ability of the Bidder, 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.

6.7 Owner reserves the right to reject the bid of any Bidder who does not pass any such evaluation to Owner's satisfaction.

6.8 The Contract award shall be based on the lowest and best bid or lowest responsive and responsible bid (as applicable for the public contracting agency receiving bids) for the base bid and selected alternate items (if any) for this project.

PART 7 BID SECURITY

7.1 Each bid must be accompanied by a certified or cashier's check in the amount of 10% of the amount bid, an irrevocable letter of credit in the amount of 10% of the amount bid or an original bond in the amount of 100% of the amount bid per O.R.C. Sections 153.54 and 153.571. The certified or cashier's check, or irrevocable letter of credit shall be from a financial institution authorized to transact business in the State of Ohio and acceptable to the Owner. The bond shall be underwritten by a Surety Company authorized to transact business in the State of Ohio having an Ohio agent and listed on the most current Department of the Treasury Circular 570, "Surety Companies Acceptable on Federal Bonds." The bond shall be a "Bid Guarantee and Contract Bond" ("rollover bond") per O.R.C. Sections 153.54 and 153.571 submitted for the full amount of the bid **including all alternates**, if any.

If bid security is made by bond, the Bidder and their Surety shall sign the Supplemental Bond Acknowledgement form and submit with their bid.

7.2 The certified or cashier's check, irrevocable letter of credit, or bond shall be made payable to the Owner and shall serve as a guarantee that in the event the bid is accepted and a contract is awarded to the successful Bidder, the contract will be executed by the bidder including any certifications, certificates or additional bonds required by the contract.

7.3 Failure on the part of the successful Bidder to execute the contract documents will cause the certified or cashier's check, irrevocable letter of credit, or bond to be forfeited to the Owner as damages.

A. If the Owner awards the contract without rebidding, the Bidder (and the Surety on their bond if a bond was submitted) shall be liable to the Owner for a penal sum not to exceed the difference between the low bid and the next lowest bidder or 10% of the amount of the bid, whichever is less.

B. If the Owner does not award the Contract to the next lowest Bidder, but resubmits the project for bidding; the Bidder (and the Surety on their bond if a bond was submitted) shall be liable to the Owner for a penal sum not to exceed the costs in connection with the resubmission of bids or 10% of the amount of the bid, whichever is less.

7.4 Checks or letters of credit for bid security of all bidders will be returned in the manner and timeframe stipulated in the O.R.C. Section 153.54 Bid guaranty to be filed with bid.

PART 8 CONTRACT BOND

8.1 As security for faithful performance and payment of all obligations under the Contract, the Owner shall require and the successful Bidder shall furnish either:

A. *If submitted as Bid Security at time of bid:* "Bid Guarantee and Contract Bond" (AKA "rollover bond") per O.R.C. Sections 153.54 and 153.571.

B. *If a cashier's check or irrevocable letter of credit is submitted as Bid Security at time of bid:* Contract Bond per O.R.C. Sections 153.54 and 153.57, in the amount of 100% of the Contract Price. The Contractor and their Surety shall sign the Supplemental Bond Acknowledgement form and submit with the Contract forms

8.2 The bond shall be underwritten by a Surety Company authorized to transact business in the State of Ohio having an Ohio agent and listed on the most current Department of the Treasury Circular 570, "Surety Companies Acceptable on Federal Bonds."

8.3 The contract bond shall cover correction of the work for the period stated in the specifications and the correction period shall start upon Final Acceptance of the entire project and final payment by the Owner.

8.4 Nothing in the performance of the Engineer's service to the Owner in connection with this project shall in any way imply any undertaking for the benefit of the successful Bidder, its subcontractor(s), or the surety of any of them.

PART 9 AWARD AND EXECUTION OF CONTRACT

9.1 After the Owner's legislative body awards the project, the successful bidder will receive the unsigned contract documents. Within 10 days after their receipt, the successful Bidder shall sign and deliver to the Owner said contract documents including any certifications, certificates, or additional bonds required by the contract.

9.2 The Owner shall execute the Contract within 60 days after the day of the bid opening. When necessary and by mutual consent between the Owner and the Successful Bidder, this 60 day period may be extended.

9.3 The date of the Owner's signature on the Contract Agreement shall be the effective contract date.

9.4 The Owner shall execute and deliver to the successful Bidder one set of fully executed contract documents.

PART 10 INSURANCE

10.1 Verification of limits for public liability, property damage, automobile, Worker's Compensation, or any other insurance required by the provisions of this Contract must be submitted to the Owner prior to execution of the Contract.

10.2 All insurance shall be endorsed so that it cannot be cancelled for non-payment of premium for 10 days or cancelled or non-renewed for any other reason in less than 30 days after a written notice of such proposed action by the insurer is given to the Owner. The cancellation clause on the Certificate(s) of Insurance shall read as specified in the Supplementary Conditions and failure to submit an insurance certificate and/or policy endorsement verifying same shall be reason for the Owner to consider the Contractor non-responsive in complying with the requirements for contract execution and may be cause for forfeiture of the Bid Security to Owner.

10.3 The Insurer's affording coverage shall be authorized to transact business in the State of Ohio and be listed on the most current Ohio Department of Insurance list of Ohio Licensed Companies.

10.4 The Contractor's Liability Insurance policy(s) shall be endorsed such that limits are on a Per Project basis.

10.5 The Contractor shall also provide an Owner's and Contractor's Protective Policy.

PART 11 NON-COLLUSION AFFIDAVIT

11.1 Collusion between bidders will be cause for rejection of affected bids and may be cause for rejection of all bids. Multiple bids submitted by one bidder under the same name or different names, whether as an individual, firm, partnership, corporation, profit or non-profit, affiliate, or association will be cause for rejection of bids. A subcontractor is not a bidder, and may submit prices to multiple bidders.

11.2 All bidders shall submit an affidavit that their bid is genuine and not collusive or sham; that such bidder has not colluded, conspired, connived, or agreed, directly or indirectly, with any bidder or person, to put in a sham bid, or that such other bidder or person shall refrain from bidding; that such bidder has not in any manner, directly or indirectly sought 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 the Owner or any person or persons interested in the proposed contract; that such bidder is the only party (or parties) who has an interest with the bidder in the profits of any contract which may result from the herein contained proposal; that no individual affiliated with the Owner, including but not limited to the head of any department, any employee, or any other official or officer of the Owner, is or will be directly or indirectly interested in this bid, and/or the profits from this bid if successful; that no individual affiliated with the Owner, including but not limited to the head of any department, any employee, or any other official or officer of the Owner, has or will receive anything of value as a result of the submission of this bid or its award; that no individual affiliated with the Owner, including but not limited to the

head of any department, any employee, or any other official or officer of the Owner, has been solicited to provide assistance and/or provided assistance to the bidder which might give the bidder a competitive advantage or circumvent the competitive bidding process; and that all statements contained in said proposal are true; and further, that such bidder has not, directly or indirectly submitted this bid, or the contents thereof, or divulged information or data relative thereto to any association or to any member or agent thereof.

11.3 Each bid must be accompanied by a completed Noncollusion Affidavit provided within the contract documents.

11.4 Where there is reason to believe collusion or combination among bidders exists, the Owner reserves the right to reject the bid of those concerned.

PART 12 DELINQUENT PERSONAL PROPERTY STATEMENT

12.1 Included with the contract documents is a Delinquent Personal Property Statement to be filled out by the successful Bidder.

12.2 The statement shall be sent to both the County Auditor and the County Treasurer. A signed copy shall remain in the contract documents as well.

PART 13 ORIGINAL DOCUMENTS

13.1 All bid forms, contract forms, bonds and any other bid documents or contract documents requiring signatures shall be submitted with original signatures. No photo copies or faxed copies of signed documents shall be accepted.

PART 14 ADDENDA

14.1 The bidder shall be responsible to obtain Addenda from the web at https://bids.verdantas.com .

END OF SECTION 08/06/26

PRICES TO INCLUDE

PART 1 - GENERAL

Any work shown on the plans or required in the specifications, but not paid for separately as a bid item, shall be included in the cost of other bid items. The amount bid for each Bid Item shall include the following:

1.1 All labor, materials, tools, equipment, and transportation necessary for the proper execution of the work in accordance with the Contract Documents.
1.2 All labor, materials, tools, equipment necessary to perform restoration of all areas impacted during construction to pre-construction conditions or better.
1.3 All assistance required by the Engineer to verify compliance with the Contract Documents, including measuring for final pay quantities.
1.4 Project coordination and scheduling.
1.5 Detailed breakdown of lump sum bid items as requested by the Engineer.
1.6 All provisions necessary to protect workers, the general public, and property along the work in accordance with the Contract Documents.
1.7 Protection and/or replacement of existing property corner monuments.
1.8 Record drawings of the installed location of all underground electrical conduit, sewers, tees, wyes, laterals, etc.
1.9 Material Testing
1.10 Reimbursement to Owner for costs of re-inspection or re-testing of any work not installed in compliance with the Contract Documents.
1.11 All sediment and erosion control measures needed commensurate with the contractor's means and methods.
1.12 Construction staking and surveying of the improvements.
1.13 Maintenance of Traffic in accordance with ODOT OMUTCD 614. This shall include all labor, equipment, signage, and coordination to properly implement.
1.14 Coordination and communication with any and all property owners of which will be indirectly or directly impacted by improvements.
1.15 Temporary mailboxes, including the removal, storing, and reinstalling of any existing mailboxes impacted by the project.
1.16 Removal and reinstallation of any street signs necessary to complete the work.
1.17 Installation and removal of any temporary facilities, including but not limited to site trailer, portable toilets, access road, or features necessary to complete the work and meet all contract requirements.
1.18 Site restoration, including any landscaping, fencing, grading, mounds, grass, or vegetation that is disturbed, damaged, or removed during the course of construction.

PART 2 - ITEMS

All work proposed by this contract shall be quantified and paid for in accordance with the pertinent O.D.O.T. specification except as specifically altered by other provisions of this contract. No slag or recycled materials, including recycled asphalt products (RAP) are permitted for use for any aspect of this project.

2.1 (SPC) PRECONSTRUCTION VIDEOTAPE DOCUMENTATION

Basis of Payment

The lump sum price shall include all costs associated with hiring a professional videotaping firm to document in detail the existing conditions of the entire work area and potential disturbed areas and submitting a high quality USB flash drive with audio commentary and video log. The unit price shall also include mobilization, setup, and accurately measuring the location of, DVDs or USB drives with mp4 files, logs, and the furnishing of all labor, material, tools and appurtenances necessary to complete the work as specified or as shown. DVDs and logs shall be turned over to the Owner prior to payment for this item.

2.2 (SPC) BONDS AND INSURANCES, AS PER PLAN

Basis of Payment

A "Bonds and Insurances" item (including "Owner/Contractor Protective Policy," "All Risk Builder's Risk Insurance," and/or "Installation Floater Insurance", and/or endorsements to fully comply with all contract requirements) has been included in the bid proposal.

2.3 (201) CLEARING AND GRUBBING, AS PER PLAN

Basis of Payment

This pay item is for the entire work area along any of the proposed sewer line work and pump stations. The lump sum price shall include all labor, equipment, tools, and materials including but not limited to removal and disposal of all vegetation, and removal and stockpiling of topsoil within the work limits, and/or disposal of topsoil as may be necessary, and in accordance with plan details and specifications, if any. Payment shall be made progressively throughout the contract period in proportion to the percentage of work complete or as otherwise approved by the Engineer.

2.4 (603) 120 INCH SPRAY-IN-PLACE PIPE LINING, AS PER PLAN

Method of Measurement

The method of measurement shall be the linear length (in feet) of existing storm sewer that receives application of spray lining, as indicated in the plans and specifications. This pay item is for a 120" storm sewer that has noted variations in height to width ratio. Any variation, whether less or greater in total perimeter or shape of each cross section of sewer, shall not have any modification in price and the Contractor shall account for the variations when determining their unit cost.

Basis of Payment

The unit price shall be irrespective of the depth of sewer and if not called out as a separate pay item shall include the; preparatory cleaning of the sewer and flow control; field verification of existing sewer to confirm repair extents and methods of installation; removal of any debris or materials necessary to properly install liner system, corrugation filling and surface preparation of the host pipe, joint sealing or injections, patch repairs, all pumping required for adequate handling of flow bypassing, underground water and/or surface water; pre and post construction CCTV in accordance with NASSCO PACP; and the furnishing of all labor, materials, tools and appurtenances necessary to complete the work as specified or as shown. All incidental repairs, rehabilitation activities, obstruction removal, defect remediation, and any other corrective measures determined necessary by the Contractor or Engineer to facilitate and successfully complete the rehabilitation.

2.5 (603) 84 INCH SLIP LINING, AS PER PLAN

Method of Measurement

The quantity to be paid shall be the number of linear feet installed per the specifications. This pay item is for an 84" storm sewer that has noted variations in height to width ratio. Any variation, whether less or greater in total perimeter or shape of each cross section of sewer, shall not have any modification in price and the Contractor shall account for the variations when determining their unit cost.

Basis of Payment

The unit prices for the various thicknesses of liner pipe shall include sewer cleaning, measurements of existing pipe size and length to verify plan notes, determination of live connections, flow control not included in other pay items, all liner system materials (including but not limited to liner pipe, grout, spacers, and any material necessary to install system according to manufacturer specifications), installation, curing, testing, pre and post construction CCTV in accordance with NASSCO PACP, cleanup, restoration, and the furnishing of all labor, material, tools and appurtenances necessary to complete the work in accordance with these specifications, the manufacturer's recommendations, or as shown.

The minimum thickness of the liner material shall be as specified. The unit price shall further include all work necessary to facilitate and complete the slip lining operation, including but not limited to furnishing and installing replacement liner pipe segments, jointing and connection of liner pipe sections, dewatering, maintenance of bypass pumping systems, corrugation filling, annular space grouting, bulkheads, seals, end treatments, pipe replacement, connections to existing structures/pipes, incidental repairs, localized rehabilitation, defect remediation, obstruction removal, infiltration control, restoration, and all other work required to achieve a complete and fully functional slip lined sewer installation.

2.6 MANHOLE TEE WITH ACCESS RISER AND REINFORCEMENT, AS PER PLAN

Method of Measurement

The method of measurement shall be the number of each structure installed per the Manhole Tee with Access Riser & Reinforcement Installation Detail in the plans.

Basis of Payment

The unit price stipulated in the Proposal for the work specified shall be irrespective of depth of the structures and if not called out as a separate pay item, shall be full compensation for earth and/or rock excavation for the structure and foundation; removal of all spoils as necessary to an appropriate disposal facility, furnishing and placing granular or concrete bedding and special backfill as required; testing of compaction; construction of access shaft for slip lining work; sheeting, shoring, and all trenching work necessary to construction access shaft and install manhole riser; furnishing, installing and operating necessary pumps, pipes and appurtenances necessary for flow bypassing and/or trench dewatering; sealing or banding all joints where required; verification and protection of all existing utilities, i.e., gas mains, gas connections, water mains (including hydrants and their connections to the main), water connections, sanitary sewers, sanitary connections, storm sewers, storm connections if damaged by the Contractor; tee; riser; collars; frame and lid; transition materials; gaskets; joining of riser to proposed fitting; leakage testing; disposal of all surplus and unsuitable materials; and the furnishing of all labor, tools, materials and equipment necessary to complete the work as specified or as shown.

2.7 CONTINGENCY / DISCRETIONARY ALLOWANCE

Basis of Payment

A Contingency/Discretionary Allowance has been included in the bid proposal to be utilized as directed by the Engineer for unscheduled work items not included on the proposal forms or other changes in the work. Any portion of the allowance not utilized shall be credited to the Owner.

BID FORMS

The bid forms are not available online. The bid forms are available only by purchasing a set of plans and specifications at the location indicated in the Advertisement for Bids/Public Notice to Bidders.

SECTION 2
CONTRACT FORMS

NOTICE OF AWARD

TO: «ContractName» DATE: _____
«ContractAddr»
«ContractCity», «ContractState» «ContractZip»

PROJECT: «TitleCaps»

You are notified that your Bid which was opened on «Bidopening» has been accepted for items in the amount of «ContractDollars» at the unit bid prices as reflected in the bid tabulation contained herein for the ***(fill in awarded parts, i.e. for Base Bid and Alternate C, …….. or delete)***.

You are required by the Instructions to Bidders to execute the Agreement and furnish the required Bonds, Certificates of Insurance, and other documents within 10 calendar days from the date of receipt of this Notice.

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

The Owner will return to you one (1) fully signed set of the contract documents.

ACKNOWLEDGMENT

«ContractCAPName»

_____
«ContractFirst» «ContractLast», «ContractTitle»

CONTRACT

FOR «TitleCaps»

THIS CONTRACT, made and entered into at «OwnerCity», «OwnerState», this _____ day of _____, 20____, by and between the «OwnerMuni» ("OWNER"), «OwnerState» and «ContractName» ("CONTRACTOR").

WITNESSETH: That the said CONTRACTOR has agreed and by this presents does agree with the OWNER for the consideration hereinafter mentioned and contained, and under penalty expressed in a bond given with these presents, and herein contained or hereunto annexed, to furnish at its own cost and expense, all the necessary tools, equipment, materials, labor, and tests in an expeditious, substantial and workmanlike manner, the equipment and appurtenances herein contemplated, commencing work within 20 days from the date of the Notice to Proceed and executing the work within the time and in the manner specified and in conformity with the requirements set forth in this Contract.

The following form essential parts of the Contract (may vary with project).

1. Advertisement for Bids/Public Notice to Bidders
2. Instruction to Bidders
3. Bid Forms and Proposal
4. Contract Forms and Exhibits
5. Contract Bond – ORC 153.571 or ORC 153.57
6. Contract Provisions
7. General Conditions
8. Supplementary Conditions
9. Specifications
10. Specific Project Requirements
11. Prevailing Wage Rate Schedule
12. Contract Drawings; if any.
13. Addenda; if any.

The CONTRACTOR agrees and understands that the work on this contract shall be subject to the acceptance of the OWNER based upon and in accordance with the contract specifications and contract plans and drawings on file in the office of the OWNER.

The CONTRACTOR agrees that each individual employed by the CONTRACTOR or any Subcontractor and engaged in work on the project under this contract shall be paid by prevailing wage established by the Department of Industrial Relations of the State of Ohio or the U.S. Department of Labor (Davis-Bacon Act) as detailed in the section titled "Wage Rates." This shall occur regardless of any contractual relationship which may be said to exist between the Contractor or any Subcontractor and such individual. ***(if a School District, delete this paragraph)***

The CONTRACTOR shall proceed with the said work in a prompt and diligent manner and shall do the several parts thereof. Further the CONTRACTOR shall complete the whole of said work in accordance with the specifications and contract drawings to the satisfaction of the OWNER on or before the time stated, and in default of completion within the time as fixed, the CONTRACTOR shall pay to the OWNER as liquidated damages, an amount equal to «Liquidated», for each and every day (Sundays and legal holidays excepted) the completion of the work may be delayed beyond the date fixed in the manner and as stipulated.

It is hereby mutually agreed that the OWNER is to pay and the CONTRACTOR is to receive, as full compensation for furnishing all materials and labor in building, constructing and testing and in all respect completing the herein described work and appurtenances in the manner and under the conditions herein specified, the prices stipulated in the proposal herein contained or hereto annexed and the total contract sum is «ContractDollars».

This Contract shall be in full force and effect from the date of execution by the OWNER and CONTRACTOR.

IN WITNESS WHEREOF: The OWNER and CONTRACTOR hereunto affixed their signature the day and year first mentioned above.

«ContractCAPName»

_____

«ContractFirst» «ContractLast», «ContractTitle»

«OwnerCaps»

_____

«OwnerCEOFirst» «OwnerCEOLast», «OwnerCEOTitle»

I hereby certify that funds in the amount of «ContractAmtwords» Dollars («ContractDollars») necessary for the foregoing Contract have been appropriated and are in the Treasury, or are in the process of collection, or are available through grants and/or loans from other funding sources.

_____

«OwnerFiscalFirst» «OwnerFiscalLast», «OwnerFiscalTitle»

APPROVED AS TO FORM:

_____

«OwnerLegalName», «OwnerLegalTitle»

THE CONTRACTOR SHALL FURNISH THE FOLLOWING ITEMS WITHIN 10 DAYS OF NOTIFICATION OF AWARD:

A) CERTIFICATE OF INSURANCE FOR CONTRACTOR'S PUBLIC LIABILITY INSURANCE POLICY AND AUTOMOTIVE INSURANCE POLICY

Owner, Verdantas LLC, CT Consultants, Inc., Named as Additional Insured

B) CERTIFICATE OF INSURANCE FOR OWNER'S AND CONTRACTOR'S PROTECTIVE POLICY

Owner Named as Insured (No Additional Insured)

C) CERTIFICATE OF WORKER'S COMPENSATION

D) CONTRACT BOND THAT COMPLIES WITH ORC 153.54 AND 153.57

* D above is not required if a bond complying with ORC 153.54 and 153.571 (rollover bond) was submitted at time of bid.

DELINQUENT PERSONAL PROPERTY STATEMENT

STATE OF _____)
) SS
COUNTY OF _____)

«ContractName», having been awarded a contract by the «OwnerMuni», «OwnerState», hereby affirms under oath, pursuant to Ohio Revised Code Section 5719.042, that at the time the bid was submitted, my company **was / was not (CIRCLE ONE)** charged with delinquent personal property taxes on the General Tax List of Personal Property for «OwnerCounty» County, Ohio.

If such charge for delinquent personal property tax exists on the General Tax List of Personal Property for «OwnerCounty» County, Ohio, the amount of such due and unpaid delinquent taxes, including due and unpaid penalties and interest shall be set forth below.

A copy of this statement shall be transmitted by the Taxing District's Fiscal Officer to the County Treasurer within thirty days of the date it is submitted. A copy of this statement shall also be incorporated into the Contract made between «OwnerMuni», «OwnerState», and «ContractName», and no payment shall be made with respect to any Contract unless such statement has been so incorporated as a part thereof.

Delinquent Personal Property Tax	$_____
Penalties	$_____
Interest	$_____

«ContractCAPName»

_____
«ContractFirst» «ContractLast», «ContractTitle»

Subscribed and sworn to before me this _____ day of _____ , 20 _____.

_____
Notary Public

My Commission Expires: _____

AFFIDAVIT

OF COMPLIANCE WITH OHIO REVISED CODE SECTION 3517.13

STATE OF _____)
) SS
COUNTY OF _____)

_____ being duly sworn deposes and states as follows:

1. I am duly authorized to make the statements contained herein on behalf of _____ ("the Contracting Party").

2. The Contracting Party is a/an (select one):

   ☐ Individual, partnership, or other unincorporated business association (including without limitation, a professional association organized under Ohio Revised Code Chapter 1787), estate, or trust

   ☐ Corporation organized and existing under the laws of the State of _____

   ☐ Labor organization

3. I hereby affirm that the Contracting Party and each of the individuals specified in R.C. 3517.13(I) (with respect to non-corporate entities and labor organizations) or R.C. 3517.13(J) (with respect to corporations) are in full compliance with the political contribution limitations set forth in R.C. 3517.13(I) and (J), as applicable.

4. I understand that a false representation on this certification will incur penalties pursuant to 3517.992(R).

Affiant further sayeth naught.

By: _____

Title: _____

SWORN TO BEFORE ME and subscribed in my presence this _____ day of

_____, 20_____.

_____
Notary Public

My commission expires: _____

APPROVED SUBCONTRACTORS

PROJECT: «TitleCaps»

PRIME CONTRACTOR: «ContractCAPName»

1. Name: _____

   Address: _____

   City/State/Zip: _____

   Description of Work to be Performed: _____

   Phone: _____ Amount: _____ % of Contract: _____

   EIN# _____ Unique Entity ID# _____

2. Name: _____

   Address: _____

   City/State/Zip: _____

   Description of Work to be Performed: _____

   Phone: _____ Amount: _____ % of Contract: _____

   EIN# _____ Unique Entity ID# _____

3. Name: _____

   Address: _____

   City/State/Zip: _____

   Description of Work to be Performed: _____

   Phone: _____ Amount: _____ % of Contract: _____

   EIN# _____ Unique Entity ID# _____

4. Name: _____

   Address: _____

   City/State/Zip: _____

   Description of Work to be Performed: _____

   Phone: _____ Amount: _____ % of Contract: _____

   EIN# _____ Unique Entity ID# _____

«OwnerCaps»

_____

«OwnerCEOFirst» «OwnerCEOLast», «OwnerCEOTitle»

NOTICE TO PROCEED

Project: «Title»

Owner: «OwnerMuni»
«OwnerAddr»
«OwnerCity», «OwnerState» «OwnerZip»

To: «ContractName»
«ContractAddr»
«ContractCity», «ContractState» «ContractZip»

Date: _____

You are hereby notified to commence work in accordance with the Contract. All work shall be completed by «Completion_Date».

«OwnerCaps»

_____
«OwnerCEOFirst» «OwnerCEOLast», «OwnerCEOTitle»

REV. 07/17/26

THE OWNER OR THEIR AUTHORIZED REPRESENTATIVE SHALL INSERT THE FOLLOWING CONTRACT DOCUMENTATION IN THE EXECUTED CONTRACT:

A) FINDINGS FOR RECOVERY – ORC 9.24
(http://ffr.ohioauditor.gov/)

B1) CHECK FOR DEBARRED CONTRACTORS IN THE STATE OF OHIO
(https://www.sos.state.oh.us/records/debarred-contractors/)

B2) CHECK FEDERAL SAM (System for Award Management) for FEDERAL FUNDING (including sub-contractors), (if applicable)
(https://www.sam.gov/SAM/)

C) NOTIFICATION OF SURETY AND AGENT OF CONSTRUCTION CONTRACT AWARD – ORC 9.32 (if applicable)

D) NOTIFICATION TO UTILITY COMPANIES OF COMMENCEMENT OF CONTRACT EXECUTION – ORC 153.64 (if applicable)

REV. 01/21

SECTION 3
GENERAL CONDITIONS

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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Endorsed by

CONSTRUCTION SPECIFICATIONS INSTITUTE

EJCDC C-700 Standard General Conditions of the Construction Contract
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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

TABLE OF CONTENTS

Page

Article 1 – Definitions and Terminology 1
1.01 Defined Terms 1
1.02 Terminology 5

Article 2 – Preliminary Matters 6
2.01 Delivery of Bonds and Evidence of Insurance 6
2.02 Copies of Documents 6
2.03 Commencement of Contract Times; Notice to Proceed 6
2.04 Starting the Work 7
2.05 Before Starting Construction 7
2.06 Preconstruction Conference; Designation of Authorized Representatives 7
2.07 Initial Acceptance of Schedules 7

Article 3 – Contract Documents: Intent, Amending, Reuse 8
3.01 Intent 8
3.02 Reference Standards 8
3.03 Reporting and Resolving Discrepancies 8
3.04 Amending and Supplementing Contract Documents 9
3.05 Reuse of Documents 10
3.06 Electronic Data 10

Article 4 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions; Reference Points 10
4.01 Availability of Lands 10
4.02 Subsurface and Physical Conditions 11
4.03 Differing Subsurface or Physical Conditions 11
4.04 Underground Facilities 13
4.05 Reference Points 14
4.06 Hazardous Environmental Condition at Site 14

Article 5 – Bonds and Insurance 16
5.01 Performance, Payment, and Other Bonds 16
5.02 Licensed Sureties and Insurers 16
5.03 Certificates of Insurance 16
5.04 Contractor's Insurance 17
5.05 Owner's Liability Insurance 18
5.06 Property Insurance 18
5.07 Waiver of Rights 20
5.08 Receipt and Application of Insurance Proceeds 21

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5.09 Acceptance of Bonds and Insurance; Option to Replace 21
5.10 Partial Utilization, Acknowledgment of Property Insurer 21

Article 6 – Contractor's Responsibilities 22
6.01 Supervision and Superintendence 22
6.02 Labor; Working Hours 22
6.03 Services, Materials, and Equipment 22
6.04 Progress Schedule 23
6.05 Substitutes and "Or-Equals" 23
6.06 Concerning Subcontractors, Suppliers, and Others 25
6.07 Patent Fees and Royalties 27
6.08 Permits 27
6.09 Laws and Regulations 27
6.10 Taxes 28
6.11 Use of Site and Other Areas 28
6.12 Record Documents 29
6.13 Safety and Protection 29
6.14 Safety Representative 30
6.15 Hazard Communication Programs 30
6.16 Emergencies 30
6.17 Shop Drawings and Samples 30
6.18 Continuing the Work 32
6.19 Contractor's General Warranty and Guarantee 32
6.20 Indemnification 33
6.21 Delegation of Professional Design Services 34

Article 7 – Other Work at the Site 35
7.01 Related Work at Site 35
7.02 Coordination 35
7.03 Legal Relationships 36

Article 8 – Owner's Responsibilities 36
8.01 Communications to Contractor 36
8.02 Replacement of Engineer 36
8.03 Furnish Data 36
8.04 Pay When Due 36
8.05 Lands and Easements; Reports and Tests 36
8.06 Insurance 36
8.07 Change Orders 36
8.08 Inspections, Tests, and Approvals 37
8.09 Limitations on Owner's Responsibilities 37
8.10 Undisclosed Hazardous Environmental Condition 37
8.11 Evidence of Financial Arrangements 37
8.12 Compliance with Safety Program 37

Article 9 – Engineer's Status During Construction 37
9.01 Owner's Representative 37
9.02 Visits to Site 37

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9.03 Project Representative 38
9.04 Authorized Variations in Work 38
9.05 Rejecting Defective Work 38
9.06 Shop Drawings, Change Orders and Payments 38
9.07 Determinations for Unit Price Work 39
9.08 Decisions on Requirements of Contract Documents and Acceptability of Work 39
9.09 Limitations on Engineer's Authority and Responsibilities 39
9.10 Compliance with Safety Program 40

Article 10 – Changes in the Work; Claims 40
10.01 Authorized Changes in the Work 40
10.02 Unauthorized Changes in the Work 40
10.03 Execution of Change Orders 41
10.04 Notification to Surety 41
10.05 Claims 41

Article 11 – Cost of the Work; Allowances; Unit Price Work 42
11.01 Cost of the Work 42
11.02 Allowances 45
11.03 Unit Price Work 45

Article 12 – Change of Contract Price; Change of Contract Times 46
12.01 Change of Contract Price 46
12.02 Change of Contract Times 47
12.03 Delays 47

Article 13 – Tests and Inspections; Correction, Removal or Acceptance of Defective Work 48
13.01 Notice of Defects 48
13.02 Access to Work 48
13.03 Tests and Inspections 48
13.04 Uncovering Work 49
13.05 Owner May Stop the Work 50
13.06 Correction or Removal of Defective Work 50
13.07 Correction Period 50
13.08 Acceptance of Defective Work 51
13.09 Owner May Correct Defective Work 51

Article 14 – Payments to Contractor and Completion 52
14.01 Schedule of Values 52
14.02 Progress Payments 52
14.03 Contractor's Warranty of Title 55
14.04 Substantial Completion 55
14.05 Partial Utilization 56
14.06 Final Inspection 56
14.07 Final Payment 57
14.08 Final Completion Delayed 58
14.09 Waiver of Claims 58

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Article 15 – Suspension of Work and Termination 58
15.01 Owner May Suspend Work 58
15.02 Owner May Terminate for Cause 58
15.03 Owner May Terminate For Convenience 60
15.04 Contractor May Stop Work or Terminate 60

Article 16 – Dispute Resolution 61
16.01 Methods and Procedures 61

Article 17 – Miscellaneous 61
17.01 Giving Notice 61
17.02 Computation of Times 61
17.03 Cumulative Remedies 62
17.04 Survival of Obligations 62
17.05 Controlling Law 62
17.06 Headings 62

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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.

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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.

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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.

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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

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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:*

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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.

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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

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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:*

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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

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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

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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

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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

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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

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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

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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.

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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.

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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:

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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:

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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

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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

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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.

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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.

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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.

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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

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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

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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.

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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

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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

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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.

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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.

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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

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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:

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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,

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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.

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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.

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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.

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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

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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.

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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.

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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.

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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

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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

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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.

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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, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 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.

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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.

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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;

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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

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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.

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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.

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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

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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

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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

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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

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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

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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

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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.

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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:*

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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:

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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.

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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.

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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.

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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.

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SECTION 4
SUPPLEMENTARY CONDITIONS

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC C-700, 2007 ed.) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented herein or in the Specific Project Requirements remain in full force and effect.

SC-1.01 The terms used in these Supplementary Conditions which are defined in the General Conditions have the meaning assigned to them in the General Conditions.

SC-2.02 Delete paragraph 2.02(A) in its entirety and insert the following in its place:

Owner shall furnish one (1) printed/hard copy of the drawings and Project Manual which shall be an executed contract set and one set in electronic format (.pdf), if requested.

SC-2.03(A) In the last sentence of 2.03A, change "sixtieth day" to "ninetieth day."

SC-4.02(A) Change "Supplementary Conditions" to read "Specific Project Requirements."

SC-4.06(G) Delete paragraph 4.06(G) in its entirety.

SC-5.03(A)(1) The required Certificate of Insurance shall be in a form satisfactory to the Owner (most current version of ACORD 25 or approved equal). If the Contractor fails to procure and maintain any specified and/or required insurance, the Owner shall have the right to procure and maintain the said insurance for and in the name of the Contractor and the Contractor shall pay the cost thereof and shall furnish all necessary information to make effective and maintain such insurance.

SC-5.04(B)(1) Change "Supplementary Conditions" to read "Specific Project Requirements."

SC-5.04(B)(2) The limits of liability for the insurance required by paragraph 5.04(A) of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

All of the limits below may be satisfied with an Umbrella/Excess Liability as needed to increase the Primary Policy to required limits.

5.04(A)(1) and (2) Workers' Compensation, etc., under paragraphs 5.04(A)(1) and 5.04(A)(2) of the General Conditions:

(a)	State	Statutory
(b)	Applicable Federal (e.g., Longshoreman's):	Statutory
(c)	Employer's Liability:	$1,000,000

5.04(A)(3), (4) and (5). Contractor's Liability Insurance under paragraphs 5.04(A)(3) through 5.04(A)(5) of the General Conditions which shall also include completed operations and product liability coverage.

(a) Bodily Injury and Property Damage, Combined Single Limit (CSL) (Except Products and Completed Operations) Property Damage liability insurance will provide Explosion, Collapse, and Underground coverage where applicable.

Each Occurrence	$2,000,000
General Aggregate	$4,000,000

(b) Products and Completed Operations Aggregate $1,000,000

Products and Completed Operations to be maintained for two (2) years after final payment and Contractor shall continue to provide evidence of such coverage to the Owner on an annual basis during the aforementioned period.

(c) Personal and Advertising Injury (Per Person/Organization and per occurrence). $1,000,000

(d) Fire Damage $100,000

(e) If the General Liability Policy includes a General Aggregate, such policy shall be endorsed to have the General Aggregate Per Project Aggregate Limit.

5.04(A)(6) Automobile Liability - (Owned, Non-Owned, Hired)
Contractor may provide split limits or combined single limit.

(a) Split Limits:

Bodily Injury,	Each Person:	$2,000,000
	Each Occurrence	$2,000,000
Property Damage,	Each Occurrence	$1,000,000

or

(b) Combined Single Limit

Bodily Injury and Property Damage,	Each Occurrence	$2,000,000

SC-5.04(B)(3) Add the following to the end of the paragraph: “to the extent available in the insurance industry with industry standard exclusions and as allowed under the laws and regulations in the State of Ohio;”

SC-5.04(B)(4) Add the following:

Written notice of cancellation for non-payment of premium shall be at least 10 days.

Add the following section:

SC-5.04(C) Unless otherwise stated in Specific Project Requirements, the Contractor shall purchase and provide an "Owner's and Contractor's Protective Policy" with an immediate Effective Date and the **Owner listed as the Insured (No additional insureds)** for the following limits:

Each Occurrence	$1,000,000
General Aggregate	$2,000,000

Add the following section:

SC-5.04(D) Unless otherwise stated in Specific Project Requirements the Contractor shall purchase and maintain during the Contract Time "All Risk Builders' Risk Insurance," and/or "Installation Floater Insurance," and/or "Boiler and Machinery Insurance," and any and all insurance requirements of section GC-5.06 of the General Conditions as applicable for the type of work to be performed upon the Project to the full insurable value thereof for the benefit of the Owner, the Contractor, Subcontractors and Suppliers as their interest may appear. This insurance shall cover the work until final acceptance and final payment by the Owner. This provision shall in no way release the Contractor or Contractor's Surety from obligations under the Contract Documents to fully complete the Project. The original policy(s) shall be filed with the Owner or his designated representative.

SC-5.05 *Owner’s Liability Insurance*

See SC-5.04(C) above.

SC-5.06 *Property Insurance*

Unless otherwise stated in Specific Project Requirements, the Contractor, not the Owner, shall purchase and maintain during the Contract Time all property insurance required in section GC-5.06 of the General Conditions and as outlined in SC-5.04(D) above.

Add the following section:

SC-6.02(C) The Contractor shall be responsible for the Owner and/or Engineer's additional inspection and administrative costs for work performed beyond regular working hours as defined in this Section.

SC-6.07(B) Delete paragraph 6.07(B) in its entirety.

SC-6.09 (D) Add the following:
D. The contractor agrees to the requirements of RC 153.59, RC 153.591, and RC 153.60.

Add the following section:

SC-6.10(B) Add the following:

Should the Owner be exempt from Ohio State Sales and Use Taxes on materials and equipment to be incorporated in the Project, the Contractor may obtain a waiver and said taxes shall not be included in the Contract Price.

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

The Contractor shall withhold and/or pay all consumer, use, property, employment, income and other taxes in accordance with the laws and regulations of the United States, State of Ohio, Owner and other applicable agencies which are applicable during the performance of the work.

SC-6.17 *Shop Drawings and Samples*

Add the following new paragraphs immediately after paragraph 6.17(E):

F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than three (3) submittals. Engineer will record Engineer's time for reviewing subsequent materials of shop drawings, samples, or other items requiring approval and Contractor shall reimburse Owner for Engineer's charges for such time.

G. In the event that Contractor requests a substitution for a previously approved item, Contractor shall reimburse Owner for Engineer's charges for such time unless the need for such substitution is beyond the control of the Contractor.

SC-7.02 Delete Section 7.02 of the General Conditions in its entirety and insert the following:

SC-7.02(A) The General Construction Contractor shall be referred to and defined as the Construction Coordinator.

SC-7.02(B) Duties of the Construction Coordinator include the following:

1. Scheduling and coordinating the work of the Prime Contractors including submission and periodic updating of project schedule.

2. Establishing and administrating the site safety program and procedures for the project.

3. See that permits are applied for and obtained on a timely basis. Advise the Engineer of any problems related to permit approval.

4. Monitoring compliance with Laws and Regulations.

5. Maintain project site for dust, sedimentation, debris, waste, and general site cleanliness.

6. Coordinate location and use of temporary construction facilities including but not limited to sanitary, water, power, telephone, and parking.

7. Coordinate Owner interface for utility tie-ins/shut downs.

8. Monitor shop drawing submittal and coordination of submittal information between Prime Contractors.

SC-10.01 (A) Add the following:
The Owner may request from the Contractor and the Contractor shall provide within ten days of the request, a quote for all ordered changes in the work or work the Owner may be considering to be ordered. The quote shall be a line item, detailed, itemized breakdown of the work.

SC-11.01(A) For purposes of "Cost of the Work" delete Section 11.01(A), (B), and (C) of the General Conditions in their entirety and insert ODOT 109.05, in its place.

SC-13.07(A) In the First sentence of Section 13.07(A) remove "Substantial Completion" and insert "Final Acceptance of the entire project and final payment by the Owner."

SC-13.07(C) Remove 13.07(C) and replace with the following:

All materials and equipment shall be warranted by the respective material supplier or equipment manufacturer until the end of the Contractor's "correction period" (or longer if specified elsewhere in the contract) regardless of date of initial installation or operation of the material or equipment. The cost of such extended warranties as needed from material suppliers or equipment manufacturers to provide warranty coverage until the end of the "correction period" or other period as specified in the contract shall be the responsibility of the prime contractor and shall be assumed to have been included in his bid.

SC-14.02(A) (3) Delete Section 14.02(A) (3) of the General Conditions in its entirety and insert the following:

Until the job is Substantially Complete, the Contractor will be paid 96% of the estimated value of labor and 100% of the estimated value of material installed and completed in acceptable form. Upon the Owner's agreement that the project is Substantially Complete, the 4% Retainage on labor may be reduced to the value needed to assure completion of the remaining punch list work subject to the recommendation of the Engineer and the approval by the Owner.

Add the following section:

SC-14.02(A) (4)

Payment for stored materials at invoice prices or at the unit price bid for materials, or the lesser value of the two, will be made for accepted nonperishable equipment and materials which are to be incorporated into the work, when accepted, delivered, properly stored, and protected upon the site and verified to the Engineer by a copy of the invoice. For materials and equipment meeting the foregoing conditions, the Owner will pay, when properly included in an approved estimate, 92% of the invoice value of the same. Subsequent to the inclusion of a payment for delivered materials in a progress payment, Contractor shall submit no later than the next payment submission, a partial waiver of lien from each and every supplier for whom delivered materials were paid. If no such waiver is submitted prior to or along with the next payment, the amount of delivered materials paid commensurate with that particular item will be deducted from future payments. No payment for delivered materials shall be made for any items that are scheduled to be incorporated in the work within 30 days of submission of the pay estimate. Delivered materials will not be paid in any given month for a total amount less than $5,000.00. Payment for delivered materials for such items as pipe backfill and roadway subbase will not be routinely considered.

SC-16.01 Delete Article 16 in its entirety and replace with the following:

ARTICLE 16 - DISPUTE RESOLUTION AGREEMENT - MEDIATION/ARBITRATION

OWNER and CONTRACTOR hereby agree that Article 16 of the General Conditions to the Agreement between OWNER and CONTRACTOR is amended to include the following agreement of the parties:

16.01 All claims, disputes, and other matters in question between OWNER and CONTRACTOR arising out of or relating to the Contract Documents or the breach thereof (except for claims which have been waived by the making or acceptance of final payment as provided by paragraph 14.09) will be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining, subject to the limitations of this Article 16. This agreement so to arbitrate and any other agreement or consent to arbitrate entered into in accordance herewith as provided in this Article 16 will be specifically enforceable under the prevailing law of any court having jurisdiction.

16.02 No demand for arbitration of any claim, dispute, or other matter that is required to be referred to Engineer initially for decision in accordance with paragraph 9.09 will be made until the earlier of (a) the date on which ENGINEER has rendered a written decision or (b) the thirty-first day after the parties have presented their evidence to ENGINEER if a written decision has not been rendered by ENGINEER before that date. No demand for arbitration of any such claim, dispute or other matter will be made later than thirty days after the date on which ENGINEER has rendered a written decision in respect thereof in accordance with paragraph 9.08 and the failure to demand arbitration within said thirty days' period will result in Engineer's decision being final and binding upon OWNER and CONTRACTOR. If ENGINEER renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but will not supersede the arbitration proceedings, except where the decision is acceptable to the parties concerned. No demand for arbitration of any written decision of ENGINEER rendered in accordance with paragraph 9.08 will be made later than ten days after the part making such demand has delivered written notice of intention to appeal as provided in paragraph 10.05.

16.03 Notice of the demand for arbitration will be filed in writing with the other party to the Agreement and with the American Arbitration Association, and a copy will be sent to ENGINEER for information. The demand for arbitration will be made within the thirty-day or ten-day period specified in paragraph 16.02 as applicable, and in all other cases within a reasonable time after the claim, dispute or other matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.

16.04 Except as provided in paragraph 16.05 below, no arbitration arising out of or relating to the Contract Documents shall include by consolidation, joiner or in any other manner any other person or entity (including ENGINEER, ENGINEER's Consultant, and the officers, directors, agents, employees, or consultants of any of them) who is not a party to this contract unless:

(A) the inclusion of such other person or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration, and

(B) such other person or entity is substantially involved in a question or law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings, and

(C) the written consent of the other person or entity sought to be included and of OWNER and CONTRACTOR has been obtained for such inclusion, which consent shall make specific references to this paragraph; but no such consent shall constitute consent to arbitration of any dispute not specifically described in such consent or to arbitration with any party not specifically identified in such consent.

16.05 Notwithstanding paragraph 16.04 if a claim, dispute or other matter in question between OWNER and CONTRACTOR involves the Work of a Subcontractor, either OWNER or CONTRACTOR may join such Subcontractor as a party to the arbitration between OWNER and CONTRACTOR herein under. CONTRACTOR shall include in all subcontracts required by paragraph 6.06(G) a specific provision whereby the Subcontractor consents to being joined in an arbitration between OWNER and CONTRACTOR involving the Work and such Subcontractor. Nothing in this paragraph 16.05 nor in the provision of such subcontract consenting to joinder shall create any claim, right or cause of action in favor of Subcontractor and against OWNER, ENGINEER, or ENGINEER's Consultants that does not otherwise exist.

16.06 The award rendered by the arbitration will be final, judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal.

16.07 OWNER and CONTRACTOR agree that they shall first submit any and all unsettled claim, counterclaims, disputes and other matters in questions between them arising out of or relating to the Contract Documents or the breach thereof ("disputes"), to mediation by the American Arbitration Association under the Construction Industry Mediation Rules of the American Arbitration Association prior to either of them initiating against the other a demand for arbitration pursuant to paragraphs 16.01 through 16.06, unless delay in initiating arbitration would irrevocably prejudice one of the parties. The respective thirty and ten-day time limits within which to file a demand for arbitration as provided in paragraphs 16.02 and 16.03 above shall be suspended with respect to a dispute submitted to mediation within those same applicable time limits and shall remain suspended until ten days after the termination of the mediation. The mediator of any dispute submitted to mediation under this Agreement shall not serve as arbitrator of such dispute unless otherwise agreed.

END OF SECTION

09/25

SECTION 5
SPECIFICATIONS

SECTION 011100 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Project information.
   2. Contract description.
   3. Work sequence.
   4. Work restrictions.
   5. Permits.
   6. Specification conventions.
   7. Drawing Schedule

B. Related Requirements:
   1. Section 012513 - Product Substitution Procedures
   2. Section 013216 – Construction Progress Schedule

1.2 PROJECT INFORMATION

A. Name: Larimar Culvert Improvements
   1. Larimar Culvert in East Willowick, Ohio. The culvert is located between Seaview Drive and Larimar Drive

B. Owner: The City of Willowick, Ohio
   1. Todd Shannon, Service Director (tshannon@cityofwillowick.com)

C. Engineer: Verdantas, LLC
   1. Tim McLaughlin, P.E (tmclaughlin@verdantas.com)

1.3 CONTRACT DESCRIPTION

A. This project includes the rehabilitation of existing storm sewer systems within the city of Willowick. Locations, extents, details, specifications and general requirements are detailed in the Plan Drawings and technical specifications. Specific elements are summarized below.

B. Sewer Rehabilitation – Primary work items include:
   1. Glass Reinforced Plastic Slip Lining
   2. Spray Lining with Geopolymer Sealant
   3. Access Manhole Installation

C. All improvements are to be paid for through pay items broken down by unit prices. Method of measurement and basis of payment for all items is described in bid document “Prices to Include”.

1.4 WORK SEQUENCE

A. Construct work in order to accommodate Owner’s occupancy requirements during construction period. Coordinate construction schedule and operations with Engineer.

B. Sequencing of Construction Plan: Contractor shall provide a detailed construction progress schedule in accordance with section 013216 – Construction Progress Schedule.

C. All work on private property shall be coordinated with the individual property owners and be within the bounds and conditions of designated permanent easement or temporary construction limits. Any disturbance or use of areas on private property that are not explicitly designated as permanent easements of temporary construction limits shall require written authorization from the property owner before such use and will require approval by the Owner if such modification alters any element of the Engineer’s design intent.

1.5 WORK RESTRICTIONS

A. Comply with restrictions on construction operations.
   1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction (AHJ).

B. On-Site Work Hours: Limit Work to between 8:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated. Work hours may be modified to meet Project requirements if approved by Owner and AHJ.

C. On-Site Work Day Restrictions: Do not perform Work on Site during Work blackout days indicated by Owner.

D. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions, and only after arranging for temporary utility services according to requirements indicated:
   1. Notify Owner or Engineer not less than 48 hours in advance of proposed utility interruptions.
   2. Obtain Owner of subject utility’s written permission before proceeding with utility interruptions.

E. Night, Sunday, and Holiday Work: No work will be permitted at night, Sunday or legal holidays except as noted on the plans or in the case of emergency and then only upon written authorization of the Engineer. Where no emergency exists, but the Contractor feels it advantageous to work at night, Sunday or legal holidays, the Contractor shall notify the Engineer at least two (2) days in advance, requesting written permission. Any work performed during the absence of the Engineer will be done at the Contractor's risk and responsibility and may be subject to rejection upon later inspection.

F. Noise, Vibration, Dust, and Odors: Coordinate with Owner operations that may result in high levels of noise and vibration, dust, odors, or other disruption to Owner occupancy.
   1. Notify Owner or Engineer not less than 48 hours in advance of proposed utility
   2. Obtain Owner's written permission before proceeding with utility interruptions. Retain remaining three Paragraphs below to correspond to Owner's requirements. Revise to suit Project. Where Owner's requirements are extensive, see and insert Owner policy and procedure documents in Project Manual.

1.6 PERMITS

A. Furnish necessary permits for construction of Work, including the following:
   1. The contractor shall register with the City of Willowick Building Department.

B. Contractors and subcontractors are required under Ohio Revised Code (O.R.C.) Section 149.53, to notify Ohio's State Historic Preservation Office (SHPO), and to cooperate with that office in archaeological and historic surveys and mitigation efforts if such discoveries are uncovered within the project area.

   Contact: Ohio's State Historic Preservation Office
   Diana Welling, Resource Protection & Review Department Manager
   Phone: 1-614-298-2000
   Email: dwelling@ohiohistory.org

C. Should archaeological discoveries or other activities delay progress of the work, an adjustment in contract time will be made.

1.7 SPECIFICATION CONVENTIONS

A. In general, these Specifications describe the work to be performed by the various trades, other than work specifically excluded. It shall be the responsibility of the Contractor and subcontractors to perform all work incidental to their trade, whether or not specific mention is made of each item, unless such incidentals are included under another item.

B. It is advised that the Contractor and all Subcontractors familiarize themselves with the contents of the complete Specifications, particularly for the trades preceding, following, related or adjacent to their work.

C. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
   1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
   2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
   3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications.

Unless otherwise indicated, linked information is not part of the Contract Documents.

1.8 DRAWING SCHEDULE

A. The work to be done under this Contract is shown on the following Drawings:

Title	Sheet No.
COVER SHEET	1
LEGENDS AND SYMBOLS	2
GENERAL NOTES (1 OF 2)	3
84-INCH EXISTING CONDITIONS	4
120-INCH EXISTING CONDITIONS	5
MAINTENANCE OF TRAFFIC	6
SITE EXISTING CONDITIONS	7
SITE ACCESS PLAN	8
84-INCH PLAN AND PROFILE	9
120-INCH PLAN AND PROFILE	10
120-INCH SPRAY LINING TYPICAL DETAILS	11
GRP SLIP LINER TYPICAL DETAIL	12
STANDARD DETAILS (1 OF 2)	13
STANDARD DETAILS (2 OF 2)	14
EROSION CONTROL DETAILS	15

END OF SECTION 011100

SECTION 011419 – USE OF SITE

PART 1 - GENERAL

1.1 GENERAL

A. The Contractor will be allowed the use of as much of the site designated for the improvements as is necessary for his operation.

1.2 USE OF STREETS

A. During the progress of the work, the Contractor shall make ample provisions for both vehicle and pedestrian traffic on any public street and shall indemnify and save harmless the Owner from any expense whatsoever due to their operations over said streets. The Contractor shall also provide free access to all the fire hydrants, water, and gas valves located along the line of his work. Gutters and waterways must be kept open or other provisions made for the removal of storm water. Street intersections may be blocked only one-half at a time, and the Contractor shall lay and maintain temporary driveways, bridges and crossings, such as in the opinion of the Engineer are necessary to reasonably accommodate the public.

B. In the event of the Contractor's failure to comply with these provisions, the Owner may cause the same to be done, and may deduct the cost of such work from any monies due the Contractor under this Agreement, but the performance of such work by the Owner at its instance shall serve in no way to release the Contractor from his general or particular liability for the safety of the public or the work.

C. The Contractor shall repair at no cost to the Owner, all existing roads, parking areas, grassed areas that are damaged due to the execution of his work. The Contractor shall remove daily all mud, soil and debris that may be tracked onto existing streets, drives, or walks by their equipment or that of subcontractors or suppliers.

1.3 CLOSING STREETS TO TRAFFIC

The Contractor may with the approval of the Engineer and City, close streets, or parts of streets, to vehicular traffic. The streets are to remain closed as long as the construction work or the condition of the finished work requires or as determined by the Engineer. The Engineer shall be the judge of how many streets or parts of streets it is necessary for the Contractor to close at any time, and may refuse to permit the closing of additional streets to traffic until the majority of the work on the closed streets is completed and they are opened to traffic.

1.4 RIGHTS-OF-WAY

A. Whenever it is required to perform work within the limits of public or private property or in rights-of-way, such work shall be done in conformity with all agreements between the Owner and the owners of such. Care shall be taken to avoid injury to the premises

entered, which premises shall be left in a neat and orderly condition by the removal of rubbish and the grading of surplus materials, and the restoration of said public or private property to the same general conditions as pertained at the time of entry for work to be performed under this contract.

B. The Contractor shall not (except after consent from the proper parties) enter or occupy with men, tools or equipment, any land outside the rights-of-way or property of the Owner.

C. When the Contractor performs construction within 10 ft. of a right-of-way or easement line, they shall place tall stakes properly identified at points of change in width or direction of the right-of-way or easement line and at points along the line so that at least two stakes can be seen distinctly from any point on the line.

1.5 EASEMENTS

A. Where the work is to be constructed upon easements, such easements will be secured by the Owner without cost to the Contractor. The Contractor shall not enter upon or occupy any private property outside of the limits of the easements furnished.

B. Care shall be taken to avoid injury to the premises entered, which premises shall be left in a neat and orderly condition by the removal of rubbish and the grading of surplus materials, and the restoration of said public or private property to the same general conditions as pertained at the time of entry for work to be performed under this contract.

1.6 PROTECTING EXISTING BUILDINGS, STRUCTURES AND ROADWAYS

A. The Contractor shall, at their own expense, shore up and protect any buildings, roadways, utilities or other public or private structures which may be encountered or endangered in the prosecution of the work, and that may not be otherwise provided for, and he shall repair and make good any damages caused to any such property by reason of his operations. All existing fences removed due to the prosecution of the work shall be replaced by the Contractor. No extra payment will be made for said work or material, but the cost of this work must be included in the price stipulated for the work to be done under this contract.

1.7 SITE FACILITIES

A. The Contractor shall furnish and place sufficient quantities of portable toilet facilities at locations convenient for use by the Contractor's personnel, Subcontractors, the Engineer, and the Owner.

1.8 RESTORATION

A. The contractor shall restore all areas per the plans and specifications and if not specified, at least to the condition existing prior to the start of work.

END OF SECTION 011419

SECTION 011423 - ADDITIONAL WORK, OVERTIME

PART 1 - GENERAL

1.1 NIGHT, SUNDAY AND HOLIDAY WORK

A. No work will be permitted at night, Sunday or legal holidays except as noted on the plans or in the case of emergency and then only upon written authorization of the Engineer. Where no emergency exists, but the Contractor feels it advantageous to work at night, Sunday or legal holidays, the Contractor shall notify the Engineer at least two (2) days in advance, requesting written permission. Any work performed during the absence of the Engineer will be done at the Contractor's risk and responsibility and may be subject to rejection upon later inspection.

END OF SECTION 011423

SECTION 012513 – PRODUCT SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 MATERIALS AND EQUIPMENT

A. In the specifications and on the Engineer's drawings, are specified and shown certain pieces of equipment and materials deemed most suitable for the service anticipated. This is not done to eliminate other equipment and materials equally as good and efficient. The Contractor shall prepare their bid on the particular materials and equipment specified. Following the award of the contract, should the Contractor desire to use other equipment and materials, they shall submit to the Owner a written request for such change and state the advantage to the Owner and the savings or additional cost involved by the proposed substitution. The determination as to whether or not such change will be permitted rests with the Owner and the Engineer.

B. Each major item of equipment shall be inspected by a manufacturer's representative during installation and upon completion of the work. The Contractor shall supply the Engineer with a certificate of such inspection.

END OF SECTION 012513

SECTION 013119 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 PRECONSTRUCTION MEETING

A. Prior to the Contractor beginning any work on the project, the Owner will schedule and hold a preconstruction meeting to discuss all aspects of the contract work.

B. The Contractor shall be present and be prepared to comment in detail on all aspects of their work.

C. The Contractor shall bring to the preconstruction meeting a proposed construction progress schedule, erosion control plan, quality control program, concrete mix designs, asphalt mix designs (JMF), etc. Approval of each by the Engineer is required prior to the start of any work.

D. Included in the construction progress schedule shall be an implementation sequence of the proposed erosion control and temporary bypass pumping efforts required to complete the work as detailed and specified.

1.2 PROGRESS MEETINGS

A. Monthly progress meetings will be held at a location to be determined by the Owner on a regularly scheduled day mutually convenient to the Owner, Contractor, and Engineer.

B. The Contractor shall provide an updated construction progress schedule and be prepared to comment in detail on all aspects of their work.

END OF SECTION 013119

SECTION 013216 – CONSTRUCTION PROGRESS SCHEDULE

PART 1 - GENERAL

1.1 PROGRESS SCHEDULE

A. Immediately after signing the Contract, the General Construction Contractor shall prepare a graphic progress schedule, indicating the work to be executed during each month and the rate of expected progress to secure completion on the agreed-upon completion date. The progress schedule shall be approved by the Engineer and Owner prior to starting work on the site. Copies of such graphic progress charts, upon which has been indicated the actual progress, shall be furnished to the Engineer with each requisition for payment.

This progress schedule must follow these general time frames (may vary with project):

1. Notification of any proposed changes to traffic patterns, lane restrictions, or maintenance of traffic operations shall be provided a minimum of ten (10) business days prior to mobilization. Detours will not be permitted. Traffic access shall be maintained in accordance with the approved Maintenance of Traffic plan.
2. Temporary Facilities shall be installed as necessary within the 48 hours prior to the mobilization of construction. This includes:
    a. Maintenance of Traffic (signage to be setup in advance of any lane closures)
    b. Temporary Bypass pumping facilities
    c. Staging of equipment and laydown locations
    d. Excavation and trenching
3. Installation of sewer improvements (schedule and requirements will vary based on means and methods as well as the temporary facilities required to implement such improvements).
4. Removal of temporary facilities as necessary following the completion of any necessary restoration associated with such improvements.
5. Final site restoration.

B. Should the rate of progress fall materially behind the scheduled rate of progress, and unless the delay is authorized by the Engineer, each offending Contractor shall furnish additional labor, work overtime, or take other necessary means required for completion of the work on the scheduled date. No additional compensation beyond the set Contract price shall be paid for action taken or overtime expense incurred in maintaining scheduled progress.

END OF SECTION 013216

SECTION 013223 – SURVEY AND LAYOUT DATA

PART 1 - GENERAL

1.1 STAKING

A. The Contractor shall hire a surveyor licensed in the state the work is to be installed to provide all reference points not already established and staking. The Contractor shall protect and preserve the established staking and reference points as long as required for installation of the work and field verifications by any party. The Contractor's surveyor shall replace and accurately relocate all staking and reference points so lost, destroyed or moved.

1.2 LAYOUT OF WORK

A. The Contractor shall lay out their work and be responsible for correct locations, elevations and dimensions of all work executed by them under this Contract. The Contractor must exercise proper precautions to verify the figures shown on the Drawings before laying out the work and will be held responsible for any error resulting from their failure to exercise such precaution. The Contractor shall insure the new construction aligns with any existing work.

END OF SECTION 013223

SECTION 013233 – PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 PROGRESS PHOTOGRAPHS

A. The General Construction Contractor shall have two (2) color photographs made of the project every three (3) weeks it is in progress. The photographs shall be of such views and taken at such times as the Engineer directs.

B. All photographed work shall be done by a qualified, established, commercial photographer. Two (2) glossy prints of each photograph shall be furnished the Engineer and two (2) to the Owner. Prints shall be approximately 7-1/2 in. X 10 in. in size. Prints shall be inserted in transparent sheet protectors provided with punching for a 3-ring binder. Suitable binders shall be provided by the Contractor.

C. Each photograph shall have a permanent negative title block in the lower right hand corner or on the back, approximately 2-1/4 in. wide x 1-3/4 in. high, and stating therein in neat lettering:

1. Owner's Name
2. Contract Description
3. Contractor's Name
4. Description of View
5. Photo No._____, Date_____
6. Consulting Engineer

D. The arrangement of and the information in the title block, shall be subject to the Engineer's approval. The cost for all photographs shall be paid for by the General Construction Contractor.

END OF SECTION 013233

SECTION 013236 – VIDEO MONITORING AND DOCUMENTATION

PART 1 - GENERAL

1.1 SCOPE

A. Provide all labor, materials, equipment, and services, and perform all operations necessary to furnish to the Owner a complete color audio-video record on a USB Flash Drive of the surface features within the proposed construction zone of influence. This record shall include, but not be limited to, all audio-video USB Flash Drives, storage cases, video logs, and indexes. The purpose of this coverage shall be to accurately document the pre-construction condition of these surface features.

B. Internal video of the existing sewer conditions and post construction conditions following the substantial completion of work shall be performed in accordance with section 33010.17 and shall be included in the linear foot pay items for 120” Spray Lining and 84” Slip Lining.

1.2 QUALIFICATIONS

A. The color audio-video documentation shall be done by a responsible commercial firm known to be skilled and regularly engaged in the business of pre-construction color audio-video documentation. The firm shall furnish such information as the Owner deems necessary to determine the ability of that firm to perform the work in accordance with the Contract specifications.

1.3 PRODUCTS

A. The color audio-video recording delivered to the Owner shall be on a high-quality USB Flash Drive or by a cloud service that allows for all videos and logs to be downloaded onto the Owner’s server.

END OF SECTION 013236

SECTION 013319 - FIELD TEST REPORTING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes, but is not limited to, services performed by an independent testing laboratory. Laboratory services covered under this section are for testing materials used for field constructed elements of the work. Performance testing of manufactured items and shop fabricated materials shall be covered under their respective specification section.

B. All testing performed under this item shall be for the protection and benefit of the Owner and shall not be construed by the Contractor as a comprehensive quality control program intended to protect the Contractor, his subcontractors, or his suppliers. The testing frequency and types of testing shall be at the discretion of the Owner.

C. Inspections, tests, and related actions specified in this section and elsewhere in the contract documents are not intended to limit the Contractor's own quality control procedures and testing, which facilitate overall compliance with requirements of the contract documents. Requirements for the Contractor to provide quality control services as required by the Engineer, the Owner, governing authorities, or other authorized entities are not limited by the provisions of this Section.

D. The Contractor is required to cooperate with the independent testing laboratories performing required inspections, test, and similar services and the Engineer or his representative.

E. Materials and installed work may require testing or retesting at any time during progress of work. Retesting of rejected materials or installed work shall be done at Contractor's expense.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Supplementary Conditions and Division 1 Specifications sections, apply to work of this section.

B. The Contract Documents may include testing requirements furnished under other Sections. Work elements which may include other testing requirements are:

1. Section 330130.73 – SPRAY APPLIED PIPE LINING (SAPL)

2. Section 330130.76 – SEGMENTAL SLIPLINING WITH GRP COMPOSITES

3. Section 030000 – CONCRETE WORK

1.3 SELECTION AND PAYMENT

A. The Contractor will employ an independent testing laboratory to perform specified testing. Payment shall be incidental to the related work bid item. The laboratory shall be mutually agreed upon by the Owner, Engineer, and Contractor.

B. Employment of testing laboratory in no way relieves the Contractor of the obligation to perform work in accordance with requirements of the contract documents.

C. The testing laboratory and their personnel shall be under the direction of the Engineer's on-site representative, regardless of who employs their services.

1.4 REFERENCES

A. AASHTO T-19, Standard Method of Test for Unit Weight and Voids in Aggregate.

B. AASHTO T-37, Standard Method of Test for Sieve Analysis of mineral Filler for Road and Paving Materials.

C. AASHTO T-230, Standard Method of Test for Determining Degree of Pavement Compaction of Bituminous Aggregate Mixtures.

D. ASTM C-29, Standard Method of Test for Unit Weight and Voids in Aggregate.

E. ASTM C-31, Standard Practice for Making and Curing Concrete Test Specimens in the Field.

F. ASTM C-33, Standard Specification for Concrete Aggregates.

G. ASTM C-39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

H. ASTM C-40, Test Method for Organic Impurities in Fine Aggregates for Concrete.

I. ASTM C-42, Standard Test Methods for Obtaining and Testing Drilled Cored and Sawed Beams of Concrete.

J. ASTM C-88, Standard Test Method for Soundness of Aggregate by use of Sodium Sulfate or Magnesium Sulfate.

K. ASTM C-94, Standard Specification for Ready-Mixed Concrete.

L. ASTM C-117, Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing.

M. ASTM C-136, Standard Method for Sieve Analysis of Fine and Course Aggregate.

N. ASTM C-142, Test Method for Clay Lumps and Friable Particles in Aggregate.

O. ASTM C-143, Standard Test Method for Slump of Hydraulic Cement Concrete.

P. ASTM C-172, Standard Practice for Sampling Freshly Mixed Concrete.

Q. ASTM C-173, Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.

R. ASTM C-231, Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.

S. ASTM C-535, Standard Test Method for Resistance to Degradation of Large-Size Course Aggregate by Abrasion and Impact in the Los Angeles Machine.

T. ASTM C-1064, Standard Test Method for Temperature of Freshly Mixed Portland Cement Concrete.

U. ASTM D-698, Standard Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5-lb. (2.49-kg) Rammer and 12-inc. (305-mm) Drop.

V. ASTM D-2487, Standard Test Method for Classification of Soils for engineer purposes.

W. ASTM D-2940, Standard Specification for Graded Aggregate Material for Bases or Subbases for Highways or Airports.

X. ASTM D-4253, Standard Test Method for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.

Y. ASTM D-4254, Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.

Z. ASTM D-4832, Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders.

AA. ODOT Supplement 1021, Method of Test for Determination of the Percent of Fractured Pieces in Gravel.

AB. ODOT Supplement 1029, Method of Test for Determining the Percentage of Deleterious Materials in Course Aggregate.

AC. ODOT Supplement 1036, Method of Test for Determination of Percent Air Voids in Compacted Dense Bituminous Paving Mixtures.

AD. ODOT Supplement 1044, Mix Design Method for Bituminous Aggregate Base.

AE. Uni-Bell PVC Pipe Association UNI-B-6-98 for Low Pressure Air Testing of Installed Sewer Pipe.

AF. ASTM – C969 – Standard practice for infiltration and exfiltration acceptance of installed concrete sewer pipe.

1.5 SUBMITTALS

A. Prior to the start of work, submit testing laboratory name, address, and telephone number, and names of full-time specialist and responsible officer.

B. Submit copy of the testing laboratory's evaluation report issued by one of the evaluation authorities identified in Article 1.6 of this Section with memorandum of remedies of any deficiencies reported by the inspection.

C. Submit the chain of custody and other QA/QC procedures for each test to be utilized by the laboratory.

D. Submit a sample test report for review by the Engineer to demonstrate conformance with Article 3.2 herein.

1.6 QUALITY ASSURANCE

A. Except as otherwise indicated, the testing laboratory engaged shall be prequalified by the Ohio Department of Transportation for the types of services specified herein.

B. The field personnel utilized to perform all field-testing and preparation shall be certified for those tests being performed.

1.7 RESPONSIBILITIES

A. Testing Laboratory Responsibilities:

1. Provide qualified personnel at the site. Cooperate with the Engineer and Contractor in performance of services.

2. Perform specified sampling and testing of products in accordance with the specified standards.

3. Ascertain compliance of materials and mixes with requirements of the contract documents.

4. Immediately notify the Engineer and Contractor of observed irregularities or nonconformance of work or products.

5. Perform additional tests required by the Engineer.

6. Testing personnel are to report to the Engineer or his representative upon arrival on site for instructions and requirements. Prior to leaving the site, furnish the Engineer or his representative all test results whether in a formal or informal format.

7. Attend preconstruction meetings and progress meetings.

B. Contractor Responsibilities:

1. Provide access to materials proposed to be used which require testing.

2. Cooperate with laboratory personnel and provide access to the work and to manufacturers' facilities.

3. Provide incidental labor and facilities:

a. To provide access to work to be tested.

b. To obtain and handle samples at the site or at the source of products to be tested.

c. To facilitate tests.

d. To provide storage and curing of test samples as required by the testing laboratory.

4. Notify the Engineer and laboratory 48 hours prior to expected time for operations requiring testing services for scheduling purposes. Materials will not be permitted to be placed without the proper testing being performed in conformance with this Section.

1.8 LIMITS OF LABORATORY AUTHORITY

A. The laboratory may not release, revoke, alter, or enlarge the requirements of the contract documents.

B. The laboratory may not approve or accept any portion of the work.

C. The laboratory may not assume any duties of the Contractor.

D. The laboratory has no authority to stop the work.

1.9 SCHEDULE OF TESTS

Testing anticipated on this project shall include, but is not limited to:

A. Earthwork

1. Special backfill material sieve analysis per ASTM C-136, one test per source.

2. On-site trench backfill analysis per ASTM D-2487, as directed by Engineer.

3. Pipe bedding and cover sieve analysis per ASTM C-136, one test per source.

4. Drainage fill sieve analysis per ASTM C-136, one test per source.

5. Soil compaction per ASTM D-698.

a. Embankment testing shall be at least one (1) test/5,000 S.F. of each lift;

b. Trench backfill testing shall be at least one (1) test/50 L.F. of each lift;

c. Subgrade and/or subbase testing shall be at least one (1) test/200 L.F. of pavement or 5,000 S.F. of slabs subject to greater frequency due to soil conditions or Engineer's direction.

6. Backfill compaction per ASTM D-4253 and D-4254, one test per 50 L.F. of each lift.

7. Low Strength Mortar testing per ASTM D-4832.

B. Concrete

1. Concrete aggregate deleterious substances per ASTM C-40, ASTM C-117, and ASTM C-142, one test per source.

2. Concrete aggregate abrasion per ASTM C-535, one test per source.

3. Sodium sulfate soundness of coarse aggregate per ASTM C-88, one test per source.

4. Sampling Fresh Concrete: ASTM C-172, except modified for slump to comply with ASTM C 94.

a. When cylinders and/or beam samples are made, the slumps and air test shall be made using concrete from the same batch.

b. Slump: ASTM C-143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.

c. Air Content: ASTM C-173, volumetric method of lightweight concrete; ASTM C-231 pressure method for normal weight concrete; at least one for each pour of each type of air-entrained concrete, and each time a set of compression test specimens is made.

d. Concrete Temperature: ASTM C-1064, test hourly when air temperature is 40º F. (4º C.) and below, and when 80º F. (27º C.) and above; and each time a set of compression test specimens is made.

e. Compression Test Specimen: ASTM C-31; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.

f. Compressive Strength Tests: ASTM C-39; one set for each day's pour exceeding 5 cubic yards plus additional sets for each 50 cubic yards over and above the first 25 cubic yards of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required. A strength test shall be the average of the strengths of two cylinders made from the same sample of concrete and tested at 28 days.

   i. When frequency of testing will provide less than 5 strength tests for a given class of concrete, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.

   ii. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.

g. Two (2) tests beams shall be made for each 250 square yards of concrete pavement and/or slabs on grade placed.

   i. For traffic to be allowed on pavement or slab, the modulus of rupture shall be a minimum of 600 psi for Class QC-MS concrete or 400 psi for ODOT Class MS or FS.

h. When cylinders and/or beam samples are made, the slumps and air test shall be made using concrete from the same batch.

5. Nondestructive Testing: Penetration resistance, sonoscope, or other nondestructive devices may be permitted but shall not be used as the sole basis for acceptance or rejection.

6. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Engineer. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

a. Contractor shall pay for such tests conducted, and any other additional testing as may be required, when unacceptable concrete is verified.

C. Pavement

1. Aggregate base sieve analysis per ASTM D-2940, one test per source.

2. Sodium sulfate soundness of aggregate base per ASTM C-88, one test per source.

3. Percent of fractured pieces for aggregate base per ODOT Supplement 1021, one test per source.

D. Asphalt

1. Provide testing for mixture acceptance in accordance with Ohio Department of Transportation Procedures. The person performing the testing must have a current Level 1 Bituminous Concrete approval from ODOT.

E. Sewers

1. Deflection Testing

a. All thermoplastic gravity sanitary sewer pipe shall be tested for allowable deflection.

b. Deflection tests shall be performed before final acceptance and no sooner than thirty (30) days after installation of final backfill

c. Maximum allowable pipe deflection shall be five (5) percent of the average inside diameter for the size and class of pipe specified.

d. Acceptance testing shall be performed with a non-adjustable “go, no-go” mandrel with a minimum of eight (8) contact points.

Adjustable mandrels for acceptance testing shall be used only with permission of the Engineer.

e. The mandrel size shall be ninety-five (95) percent of the average inside diameter for the size and class of pipe specified.

f. If the "go, no-go" mandrel will not pass through a section of pipe a deflectometer or adjustable mandrel may be used to determine the extent and/or severity of the non-acceptable area. A “go, no-go” mandrel shall be re-run through the pipe section for final acceptance testing at no additional cost to the Owner.

g. The Contractor or subcontractor performing the test shall be experienced and qualified to perform deflection testing with the equipment and procedures utilized. The contractor shall provide all labor, materials, tools and equipment necessary to clean and test all sections of sewer pipe, locate deficient areas, repair, deficient areas, and retest all repaired areas.

h. All sewer runs shall be cleaned prior to testing.

i. The acceptance test shall be performed without mechanical pulling devices.

j. All pipe failing the deflection test shall be exposed, repaired or replaced and retested at no additional cost to the Owner.

2. Leakage Testing

a. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

b. The Contractor shall perform sufficient tests to determine that the installation of all pipe materials have been as specified and that test results are in accordance with those required for approval of the installation.

c. The Contractor shall furnish all pressure gauges, suitable pump or pumps, pipes, test heads, and any other apparatus and materials used for these tests. These tests are to be considered as part of the work, and no additional compensation shall be made.

d. The tests shall be conducted under the direction of the Engineer or an appointed agent. Any testing done without direction and supervision as specified shall not be considered as a proper means of approval.

e. The Contractor may obtain water for testing as may be required by observing the rules and regulations enforced in the municipality in which the work is being done.

f. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

3. Infiltration and Exfiltration Testing

a. All sewers shall be tested using an exfiltration test or, where specifically allowed in writing by the Engineer, an infiltration test.

b. All sewers shall be tested. No visible leakage in the sewers or manholes shall be permitted.

c. Bulkheads shall be used to isolate the test sections as required to perform the work. All service laterals, stubs and fittings shall be plugged or capped at the connection to the test section.

d. Each manhole run shall be tested separately.

4. Exfiltration Testing

a. The test shall be performed first with a minimum head of water of three (3) feet above the top of the high end of the sewer or two (2) feet above the high end of the highest lateral in the section or sections to be tested, or three (3) feet above the existing groundwater elevation, whichever is higher.

b. The exfiltration test shall be conducted between two manholes by sealing the downstream end of the test section and all inlet sewers at the upstream manhole with pipe stoppers.

c. The average internal pressure in the system shall not exceed 11.6 feet of water or 5 psi and the maximum internal pipe pressure at the lowest end shall not exceed 23 feet of water or 10 psi.

d. Water shall be added to the pipe section at a steady rate from the upstream manhole to allow air to escape from the sewer until the water is at the specified level above the crown of the pipe. The water may stand in the pipe and manhole up to seventy-two (72) hours prior to measurement of leakage to allow for absorption by the pipe and bleeding of air. After absorption into the pipe and manhole has stabilized, the water in the upstream manhole shall be brought to test level.

e. The leakage rate shall be determined by measurement of the drop in water elevation measured in the upstream manhole and the loss of

water calculated. The test period shall be a minimum of sixty (60) minutes duration. Use the following table to determine loss of water as measured in the manhole:

		Volume of Leakage	
Water Level Change in Test Manhole		4 Ft. Dia. MH	5 Ft. Dia. MH
(Inches)	(Feet)	(Gals.)	(Gals.)
1/8	0.01	0.98	1.53
1/4	0.02	1.96	3.06
3/8	0.03	2.94	4.59
1/2	0.04	3.92	6.12
5/8	0.05	4.90	7.65
3/4	0.06	5.87	9.18
7/8	0.07	6.85	10.71
1	0.08	7.83	12.24
1-1/8	0.09	8.81	13.77
1-1/4	0.10	9.79	15.30
1-3/8	0.11	10.77	16.83
1-1/2	0.12	11.75	18.36
1-5/8	0.13	12.72	19.89
1-3/4	0.14	13.71	21.42
1-7/8	0.16	14.69	22.90
2	0.17	15.67	24.48

]

5. Infiltration Testing

a. An infiltration test shall be conducted for all sections of sewer, only when the ground water level is two (2) feet or more above the elevation of the inside crown of pipe at the upstream limit of the section being tested.

b. The use of well point pumps or other dewatering devices shall have been discontinued for 24 hours prior to testing to permit the groundwater table to return to a static condition.

c. The leakage rate shall be measured by a weir, by determination of the time required to fill a container of known volume, or other measuring device approved by the Engineer in the lower end of the sewer section to be tested.

d. The incoming sewer or sewers in the upper end of the test section shall be securely sealed.

6. Allowable Leakage

a. The maximum allowable leakage for either infiltration or exfiltration shall be 50 gallons per inch of internal pipe diameter per mile per day.

b. If actual leakage measured exceeds the limits specified, the Contractor must locate and repair or remove and replace the defective pipe sections to the satisfaction of the Engineer and retest the section accordingly at no additional cost to the Owner.

c. All sanitary manholes shall be tested separately by using an exfiltration test (or infiltration test where groundwater conditions permit) to two (2) feet above the highest joint with no measurable leakage for a one hour test.

8. Manhole Vacuum Testing

a. Temporarily plug all pipe entering the manhole. Each plug must be installed at a location beyond the manhole/pipe gasket (i.e. outside the manhole wall), and shall be braced to prevent the plug or pipe from being drawn into the Manhole.

b. The test head shall be placed inside the rim of the cast iron frame at the top of the manhole and inflated, in accordance with the manufacturer's recommendations.

c. A vacuum of at least 10 inches of mercury (10” Hg) shall be drawn on the manhole. Shut the line on the vacuum line to the manhole and shut off the pump or disconnect the vacuum line from the pump.

d. The pressure gauge shall be liquid filled, having a 3.5” diameter face with a reading from zero to thirty inches of mercury.

e. The manhole shall be considered to pass the vacuum test if the vacuum reading does not drop more than 1” Hg (i.e from 10” to 9” Hg) during the Table 1 minimum test time.

f. If a manhole fails the vacuum test, the manhole shall be repaired with non-shrinkable grout or other material or method approved by the engineer. The manhole surfaces shall be properly prepared prior to any repairs. Once the repair material has curred according to the manufacturer’s recommendations, the vacuum test shall be repeated. This process shall continue until a satisfactory test is obtained.

g. All temporary plugs and braces shall be removed after each test.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION

3.1 SEQUENCING AND SCHEDULING

A. The Contractor shall coordinate the sequence of work activities so as to accommodate required testing and shall allow sufficient time for testing of materials by the laboratory so as to cause no delay in the work or the work of any other Contractor. In addition, the Contractor shall coordinate his work so as to avoid the necessity of removing and replacing work to accommodate inspections and tests.

3.2 LABORATORY TEST RESULTS

A. The testing laboratory shall submit a certified written report of each inspection, test, or similar service concurrently to the Owner, Engineer, and Contractor.

B. Written reports of each inspection, test, or similar service shall include, but not be limited to, the following:

1. Name of testing laboratory.

2. Project name and construction contract reference number.

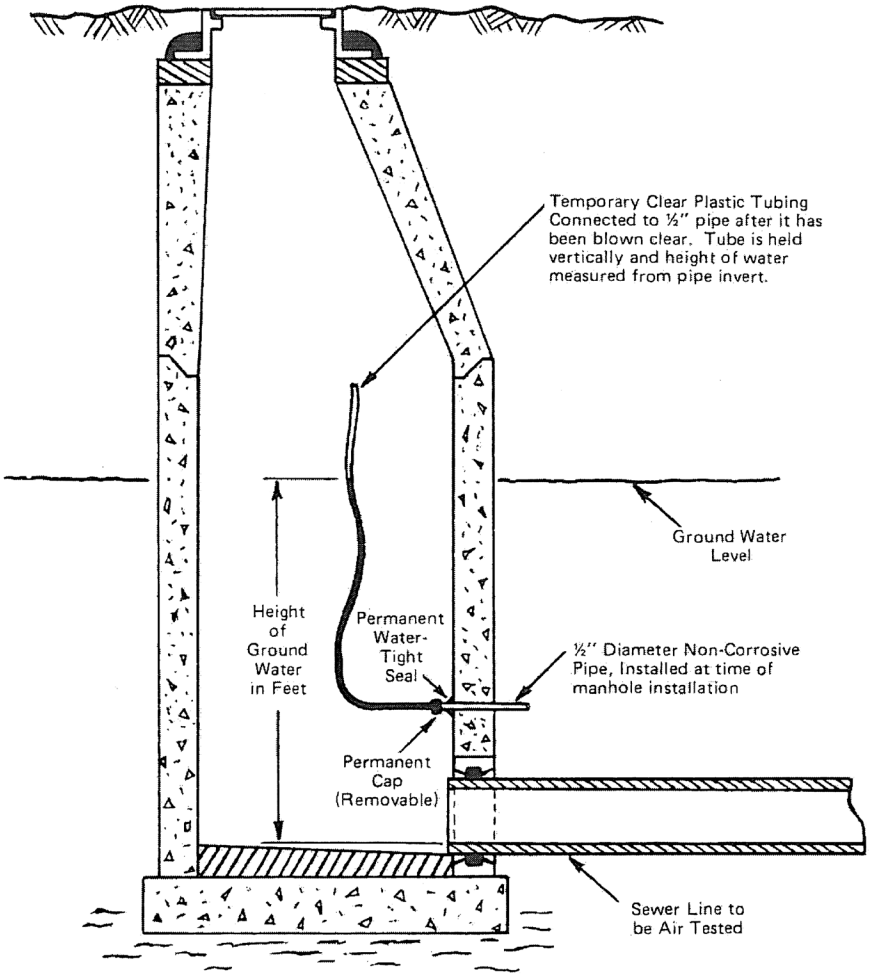
3. Dates and locations of samples and tests or inspections.

4. Date of report.
5. Names of individuals making the inspection or test.
6. Designation of the work and test method.
7. Test results.
8. Notation of significant ambient conditions at the time of sample taking and testing.

END OF SECTION 013319

FIGURE NO. 1

MANHOLE CROSS-SECTIONAL VIEW OF THE PROPER METHOD FOR DETERMINING GROUND WATER HEIGHT



AIR TEST DATA SHEET

PIPE TESTING FORM

NOTE: Pressurize pipe to 4.5 P.S.I.F. and let stabilize for 5 minutes. Pressure should then be backed off to 4.0 P.S.I.G. and test time started.

JOB NAME: **SANITARY** ☐ **STORM** ☐ **DATE:**

JOB LOCATION: **TEST COMPANY:**

JOB NO. **PROJECT REP:**

SPECIFIED PRESSURE DROP ( ) P.S.I.G. **BASE PRESSURE: 4.0 P.S.I.G.** **PIPE MATERIAL:**

(See Table 1 or Table II for Reference) **(Note: No test shall exceed 9.0 P.S.I.G.)**

PIPE SECTION UNDER TEST										
UPSTREAM MH/STATION	**DN-STREAM MH/STATION**	**PIPE DIAMETER**	**PIPE LENGTH**	**GROUND WATER DEPTH**	**BASE P.S.I.G. PLUS GROUND WATER ADJ. (÷ 2.31=P.S.I.G.)**	**TEST TIME DURATION**	**TEST START TIME**	**TEST STOP TIME**	**TEST TIME ELAPSED**	**PASS FAIL P or F**

***Identify any section(s) that failed:**

***Leak (was) (was not) located. Method used:**

REMARKS:

TABLE I

1 Pipe Diameter (Inches)	**2** Minimum Time (Min:Sec)	**3** Length for Minimum Time (Ft.)	**4** Time for Longer Length (Sec)	Specification Time for Length (L) Shown (Min:Sec)							
				100 Ft.	150 Ft.	200 Ft.	250 Ft.	300 Ft.	350 Ft.	400 Ft.	450 Ft.
4	3:46	597	.380 L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520 L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692 L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470 L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674 L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306 L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	28.852 L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46
42	39:48	57	41.883 L	69:48	104:42	139:37	174:30	209:24	244:19	279:13	314:07
48	45:34	50	54.705 L	91:10	136:45	182:21	227:55	273:31	319:06	364:42	410:17
54	51:02	44	69.236 L	115:24	173:05	230:47	288:29	346:11	403:53	461:34	519:16
60	56:40	40	85.476 L	142:28	213:41	284:55	356:09	427:23	498:37	569:50	641:04

Minimum specified time required for a 1.0 P.S.I.G. Pressure Drop

for size and length of pipe indicated for Q = 0.0015

NOTE: If there has been no leakage, (zero P.S.I.G. drop), after one hour of testing, the test shall be accepted and the test complete. (See Section 7.5)

TABLE II

Minimum specified time required for a 0.5 P.S.I.G. Pressure Drop

for size and length of pipe indicated for Q = 0.0015

1 Pipe Diameter (Inches)	**2** Minimum Time (Min:Sec)	**3** Length for Minimum Time (Ft.)	**4** Time for Longer Length (Sec)	Specification Time for Length (L) Shown (Min:Sec)							
				100 Ft.	100 Ft.	100 Ft.	100 Ft.	100 Ft.	100 Ft.	100 Ft.	100 Ft.
4	1:53	597	.190 L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427 L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12
8	3:47	298	.760 L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42
10	4:43	239	1.187 L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54
12	5:40	199	1.709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50
15	7:05	159	2.671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
18	8:30	133	3.846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
21	9:55	114	5.235 L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24	11:20	99	6.837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
27	12:45	88	8.653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	64:54
30	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07
33	15:35	72	12.926 L	21:33	32:19	43:56	53:52	64:38	75:24	86:10	96:57
36	17:00	66	15.384 L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23
42	19:54	57	20.942 L	34:54	52:21	69:49	87:15	104:42	122:10	139:37	157:04
48	22:47	50	27.352 L	45:35	68:23	91:11	113:58	136:46	159:33	182:21	205:09
54	25:31	44	34.618 L	57:42	86:33	115:24	144:15	173:05	201:56	230:47	259:38
60	28:20	40	42.738 L	71:14	106:51	142:28	178:05	213:41	249:18	284:55	320:32

NOTE: If there has been no leakage, (zero P.S.I.G. drop), after one hour of testing, the test shall be accepted and the test complete. (See Section 7.5)

VERDANTAS LLC

HYDROSTATIC LEAKAGE TEST

JOB. NO. _____ PROJECT: _____

CONTRACTOR: _____ CLIENT: _____

WATERLINE TESTED AT: _____ _____
(Street Name) (Station of Gauge)

FROM STATION _____ TO STATION _____ ON _____

WATERLINE SIZE _____ TYPE _____

TESTED _____ , _____ AT _____ FOR _____
TOTAL L.F. PIPE SIZE PSI DURATION

ALLOWABLE LEAKAGE _____ PER 1,000 L.F. OR _____ PER _____
GALS./HR. TOTAL GALS. TOTAL L.F.

1ST TEST _____, _____ AND _____
PASS / FAIL PRESSURE LOST GALLONS LOST

2nd TEST _____, _____ AND _____
PASS / FAIL PRESSURE LOST GALLONS LOST

APPROVED BY _____
(INSPECTOR)

COMMENTS:

ALLOWABLE LEAKAGE PER 1,000 FEET OF WATERMAIN:

PIPE SIZE INCH DIAMETER	ALLOWABLE LEAKAGE GALS. / 1,000 FEET
6	1
8	1.3
10	1.6
12	1.9
16	2.5
20	3.2
24	3.8
30	4.8
36	5.7

NOTE: IN NO CASE SHALL THE TESTED SECTION EXCEED 2,000 FEET IN LENGTH.

verdantas

PROJECT: _____ **SHEET NO. 1 OF** _____

JOB NO. _____ **STREET:** _____

CONTRACTOR: _____ **PROJECT REP:** _____

MANHOLE VACUUM TEST

M.H. NO.	M.H. Diameter (in.)	M.H. Depth (ft.) (btm.m.h. cover to shelf)	Vacuum Required (in Hg)	Vacuum Attained (in Hg)	Vacuum Drop (in Hg)	Holding Time Required (sec.)	Pass/ Fail	Date Tested	Contractor Attest	Engineer Attest	Remarks

TABLE 1 – Minimum Test Times for Various Manhole Diameter									
Depth				Diameter, in.					
(ft)	30	33	36	42	48	54	60	66	72
Time(s)									
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	29	34	40	46	52	58	67
18	25	27	32	38	45	52	59	65	73
20	28	30	35	42	50	53	65	72	81
22	31	33	39	46	55	64	72	79	89
24	33	36	42	51	59	64	78	87	97
26	36	39	46	55	64	75	85	94	105
	39	42	49	59	69	81	91	101	113
	42	45	53	63	74	87	98	108	121

Note: Allowable drop equals 1 in. Hg for time shown

PROJECT REP: _____

DATE: _____

SECTION 013323 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.1 GENERAL

A. The Contractor shall submit detailed drawings, acceptable catalog data, specifications and material certifications for all equipment and materials specified or required for the proper completion of the work.

B. The intent of these items is to demonstrate compliance with the design concept of the work and to provide the detailed information necessary for the fabrication, assembly and installation of the work specified. It is not intended that every detail of all parts of manufactured equipment be submitted, however sufficient detail will be required to ascertain compliance with the specifications and establish the quality of the equipment proposed.

Shop Drawings shall be sufficiently clear and complete to enable the Engineer/Architect and Owner to determine that items proposed to be furnished conform to the specifications and that items delivered to the site are actually those that have been reviewed.

C. It is emphasized that the Engineer/Architect's review of Contractor's submitted data is for general conformance to the contract drawings and specifications but subject to the detailed requirements of drawings and specifications. Although the Engineer/Architect may review submitted data in detail, such review is an effort to discover errors and omissions in Contractor's drawings. The Engineer/Architect's review shall in no way relieve the Contractor of their obligation to properly coordinate the work and to Engineer/Architect the details of the work in such manner that the purposes and intent of the contract will be achieved. Such review by the Engineer/Architect shall not be construed as placing on him or on the Owner any responsibility for the accuracy and for proper fit, functioning or performance of any phase of the work included in the contract.

D. Shop Drawings shall be submitted in proper sequence and with due regard to the time required for checking, transmittal and review so as to cause no delay in the work. The Contractor's failure to transmit appropriate submittals to the Engineer/Architect sufficiently in advance of the work shall not be grounds for time extension.

E. The Contractor shall submit Shop Drawings for all fabricated work and for all manufactured items required to be furnished in the Contract in accordance with the General Provisions and as specified herein. Shop Drawings shall be submitted in sufficient time to allow at least twenty-one (21) calendar days after receipt of the Shop Drawings from the Contractor for checking and processing by the Engineer/Architect.

F. It is the responsibility of each Prime Contractor to furnish to all other Prime Contractors and especially the General Construction Contractor reviewed Shop Drawings for guidance in interfacing the various trades; i.e., sleeves, inserts, anchor bolts, terminations, and space

G. No work shall be performed requiring Shop Drawings until same have been reviewed by Engineer/Architect.

H. Accepted and reviewed Shop Drawings shall not be construed as approval of changes from Contract plan and specification requirements.

I. The Engineer/Architect will review the first and second Shop Drawing item submittals at no cost to the Contractor. Review of the third submittal and any subsequent submittal will be at the Contractor's expense. Payment will be deducted from the Contract amount at a rate of 3.5 times direct labor cost plus expenses.

J. When means and methods for specific work such as, but not limited to, excavation and trenching, dewatering, or stormwater pollution prevention plans are deferred to the Contractor by the Engineer, a licensed professional engineer within the State of the work shall stamp all submissions prior to providing to the Owner and Engineer unless otherwise noted in the contract drawings or specifications.

1.2 SUBMITTAL PROCEDURE

A. All required submissions shall be made to the Engineer/Architect by the Prime Contractor(s) only. Any data prepared by subcontractors and suppliers and all correspondence originating with subcontractors, suppliers, etc., shall be submitted through the Contractor.

B. Contractor shall review and approve all Shop Drawings prior to submission. Contractor's approval shall constitute a representation to Owner and Engineer/Architect that Contractor has either determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data or assumes full responsibility for doing so, and that Contractor has reviewed or coordinated each Shop Drawing or sample with the requirements of the work and the Contract Documents.

C. Submittal Preparation: Mark each submittal with a permanent label or page for identification. Provide the following information on the label for proper processing and recording of action taken:

1. Location
2. Project Name
3. Contract
4. Name and Address of Engineer/Architect
5. Name and Address of Contractor
6. Name and Address of Subcontractor
7. Name and Address of Supplier
8. Name of Manufacturer
9. Number and Title of appropriate Specification Section
10. Drawing Number and Detail References, as appropriate.
11. Submittal Sequence or Log Reference Number.

a. Provide a space on the label for the Contractor's review and approval markings and a space for the Engineer/Architect's "Action Stamp".

D. Each Shop Drawing, sample and product data submitted by the Contractor shall have affixed to it the following Certification Statement including the Contractor's Company name and signed by the Contractor:

Certification Statement: By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements.

_____ _____
Signature Date

_____
Company

E. Shop Drawings shall be submitted in not less than six (6) copies to the Engineer/Architect at the address specified at the Preconstruction Conference. Single mylar or sepia reproducible copies of simple Shop Drawings may be submitted with prior approval of the Engineer/Architect.

F. At the time of each submission, Contractor shall in writing identify any deviations that the Shop Drawings or samples may have from the requirements of the Contract Documents.

G. Drawings shall be clean, legible and shall show necessary working dimensions, arrangement, material finish, erection data, and like information needed to define what is to be furnished and to establish its suitability for the intended use. Specifications may be required for equipment or materials to establish any characteristics of performance where such are pertinent. Suitable catalog data sheets showing all options and marked with complete model numbers may, in certain instances, be sufficient to define the articles which it is proposed to furnish.

H. SAMPLES: For product which require submittal of samples, furnish samples so as not to delay fabrication, allowing the Engineer reasonable time for the consideration of the samples submitted. Properly label samples, indicating the material or product represented, its place of origin, the names of the vendor and Contractor and the name of the project for which it is intended. Ship samples prepaid. Accompany samples with pertinent data required to judge the quality and acceptability of the sample, such as certified test records and, where required for proper evaluation, certified chemical analyses.

1.3 REVIEW PROCEDURE

A. Engineer/Architect will review with reasonable promptness all properly submitted Shop Drawings. Such review shall be only for conformance with the design concept of the Project and for compliance with the information given in the plans and specifications and shall not extend to means, methods, sequences, techniques or procedures of construction or to safety precautions or programs incident thereto.

B. The review of a separate item as such will not constitute the review of the assembly in which the item functions. The Contractor shall submit entire systems as a package.

C. All Shop Drawings submitted for review shall be stamped with the Engineer/Architect's action and associated comments.

D. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Engineer/Architect will review each submittal, mark to indicate action taken, and return accordingly. Compliance with specified characteristics is the Contractor's responsibility.

Action Stamp: The Engineer/Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:

1. If Shop Drawings are found to be in general compliance, such review will be indicated by marking the first statement.
2. If only minor notes in reasonable number are needed, the Engineer/Architect will make same on all copies and mark the second statement. Shop Drawings so marked need not be resubmitted.
3. If the submitted Shop Drawings are incomplete or inadequate, the Engineer/Architect will mark the third statement, request such additional information as required, and explain the reasons for revision. The Contractor shall be responsible for revisions, and/or providing needed information, without undue delay, until such Shop Drawings are acceptable. Shop Drawings marked with No. 3 shall be completed resubmitted.
4. If the submitted Shop Drawings are not in compliance with the Contract Documents, the Engineer/Architect will mark the fourth statement. The Contractor will be responsible to submit a new offering conforming to specific products specified herein and/or as directed per review citations.

E. No submittal requiring a Change Order for either value or substitution or both, will be returned until the Change Order is approved or otherwise directed by the Owner.

APPLICATION FOR USE OF SUBSTITUTE ITEM

TO: _____

PROJECT: _____

SPECIFIED ITEM:

_____	_____	_____
Page	Paragraph	Description

A. The undersigned requests consideration of the following as a substitute item in accordance with Article 6.05 of the General Conditions.

_____

B. Change in Contract Price (indicate + or -) $ _____

C. Attached data includes product description, specifications, drawings, photographs, references, past problems and remedies, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified. For consideration of the attached data as SHOP DRAWINGS, submittal shall be in accordance with requirements of Section 013323.

D. Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The undersigned certifies that the following paragraphs, unless modified by attachments are correct:

1. The proposed substitute does not affect dimensions shown on Drawings.

2. The undersigned will pay for changes to the building design, including engineering design, detailing, and construction costs caused by the requested substitution.

3. The proposed substitution will have no adverse affect on other contractors, the construction schedule, or specified warranty requirements. (If proposed substitution affects construction schedule, indicate below using + or -)

   _____ CONSECUTIVE CALENDAR DAYS

4. Maintenance and service parts will be locally available for the proposed substitution.

The undersigned further states that the function, appearance, and quality of the proposed substitution are equivalent or superior to the specified item, and agrees to reimburse the OWNER for the charges of the ENGINEER for evaluating this proposed substitute item.

E. Signature: _____

Firm: _____

Address: _____

_____

Telephone: _____ Date: _____

Attachments: _____

_____

_____

_____

For use by ENGINEER:

_____Accepted as evidenced by affixed SHOP DRAWING REVIEW stamp.
_____Accepted as evidenced by included CHANGE ORDER.
_____Not accepted as submitted. See Remarks.
_____Acceptance requires completion of submittal as required for SHOP DRAWINGS.
_____Not accepted. Do not resubmit.

By: _____ Date: _____

Remarks: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

APPLICATION FOR USE OF "OR-EQUAL" ITEM

TO: _____

PROJECT: _____

SPECIFIED ITEM:

_____	_____	_____
Page	Paragraph	Description

A. The undersigned requests consideration of the following as an "or-equal" item in accordance with Article 6.05 of the General Conditions.

_____

B. Change in Contract Price (indicate + or -) $ _____

C. Attached data includes product description, specifications, drawings, photographs, references, past problems and remedies, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified. For consideration of the attached data as SHOP DRAWINGS, submittal shall be in accordance with requirements of Section 013323.

D. Signature:

_____

Firm:

_____

Address:

_____

_____

Telephone: _____ Date: _____

Attachments: _____

_____

_____

For use by ENGINEER: _____

_____Accepted as evidenced by affixed SHOP DRAWING REVIEW stamp.
_____Accepted as evidenced by included CHANGE ORDER.
_____Not accepted as submitted. See Remarks.
_____Acceptance requires completion of submittal as required for SHOP DRAWINGS.
_____Not accepted. Do not resubmit.

By: _____ Date: _____

Remarks: _____

END OF SECTION 013323

SECTION 013326 – PRODUCT TESTING AND CERTIFYING

PART 1 - GENERAL

1.1 QUALITY OF MATERIALS

A. Where the specifications call for mill or shop tests, the Contractor shall furnish duplicate copies of attested manufacturer's certificates showing details of quality or performance sufficient to demonstrate conformity to contract requirements. Mill, shop or witness tests shall be subject to view by the Engineer's representative, but the Engineer's representation shall not relieve the Contractor from the necessity of furnishing certificates specified. The Engineer shall be notified by the Contractor in writing, sufficiently in advance of the time of making tests, so that proper arrangements may be made. Waiving of witness of tests by the Engineer may be in writing only by the Engineer. All costs for travel, lodging, food and transportation that are necessary for the Engineer's representative and the Owner's representative to attend witness tests shall be included in the Contractor's bid for those item(s) specifically designated as being subject to witness testing.

B. Unless otherwise specified, all materials, equipment and articles shall be erected, installed, applied, or connected, used, cleaned and conditioned in accordance with the printed instructions and directions of the manufacturer.

C. The installation shall be so made that its several component parts will function together as a workable system. It shall be complete with all accessories necessary for its operation and shall be left with all equipment properly adjusted and in working order.

D. The work shall be executed in conformity with the best practice and so as to contribute to efficiency of operation, minimum maintenance, accessibility and sightliness. It shall also be executed so that the installation will conform and accommodate itself to the building structure, its equipment and usage.

E. Whenever in the contract documents a particular brand, make of material, device or equipment is shown or specified, such brand, make of material, device or equipment is to be regarded merely as a standard and such trade name shall be followed by "or equal".

1.2 QUALITY ASSURANCE

A. The equipment and materials to be furnished under this Contract shall be the products of well established and reliable firms which have had ample experience for at least five (5) years in the manufacture of equipment or materials similar in design and of equal quality to that specified. If required, the manufacturer shall submit a list of installations of similar equipment which have been in successful operation for at least five (5) years.

1.3 EXPERIENCE CLAUSE REQUIREMENT AND PERFORMANCE BONDS FOR MANUFACTURER

A. For every piece of equipment furnished under this Contract, the manufacturer will be required to have a minimum of five (5) years of experience in providing this specific type

of equipment. In lieu of this experience requirement, the manufacturer will be required to provide performance bond(s) for the faithful performance of the equipment and guarantee payment in a sum of not less than one hundred and fifty percent (150%) of the total equipment price for the completed work for that item. In the absence of verifiable experience, the manufacturer will be required to provide the performance bond(s) for the same number of years that the manufacturer was found lacking in experience from the specified five (5) year period. The performance bond(s) shall be from an approved surety company, to the satisfaction of the Owner's Law Director.

B. Agents of bonding companies which write bonds for the performance and payment of the contract shall furnish power of attorney bearing the seal of the company, evidencing such agent's authority to execute the particular type of bond to be furnished, and evidencing also the right of the surety company to do business in the State of Ohio. Copy of this proof shall be attached to each copy of the contract.

C. The bond shall be purchased through a surety company with a local agent upon whom service of process can be made.

D. In event of failure of surety or co-surety, the manufacturer shall immediately furnish a new bond, as required herein. The manufacturer's bond will not be released until all provisions of the contract have been fulfilled.

E. The surety used for the bid bond and performance bond shall be listed in the latest U.S. Treasury Circular 570 and the Penal Sums shall be within the maximum specified for such company in said Circular 570.

END OF SECTION 013326

SECTION 013326.01 - QUALITY CONTROL PLAN

PART 1 - GENERAL

1.1 QUALITY CONTROL

A. The Contractor shall be responsible for the quality of all materials incorporated into the project work and shall be responsible for all costs of testing and certification of same. The Contractor shall provide the Engineer a list of three (3) local qualified firms for the City to select from to be the Contractor's testing firm.

B. The Contractor shall provide the Engineer with a Quality Control Plan in which their testing methods/procedures are defined. Said Plan shall meet with the approval of the Engineer and include identification of laboratories, types of testing, and the tentative amount and scheduling of each.

All certifications of tests and/or gradations for materials to be utilized in the work and all quality control testing shall be performed by an independent laboratory (not affiliated with, owned by, or managed by the Contractor). The laboratory shall be accredited by the AASHTO Materials Reference Laboratory for the type of testing performed.

C. The Owner may perform field Quality Assurance testing; however, such testing shall not relieve the Contractor from the responsibility of Quality Control testing or from supplying certificates from manufacturers or suppliers to demonstrate compliance with the specifications. It is intended that the testing by the Contractor and the Owner be complimentary toward a quality project; however, the Contractor may not assume the Owner will test or that any tests will be done in lieu of the Contractor's own Quality Control testing. In the same sense, the Contractor may not rely on Owner Quality Assurance testing as a basis of acceptance or approval of their work nor may any Owner performed testing be reflected in their submitted plan.

1.2 TEST CRITERIA

A. The following tests at a minimum shall be included with the Contractor's Quality Control Plan in accordance with the specifications:

1. Aggregates
   a. For each material and/or different source, the laboratory shall perform soundness, gradation, and other tests for all parameters specified. Aggregates incorporated into concrete or asphalt mixes shall also be tested for moisture content daily.

2. Compaction Tests
   a. Compaction tests or field density tests shall be taken on all embankment, trench backfill, subgrade, and subbase materials.
   b. Minimum testing shall be as follows:
      Embankment testing shall be at least one (1) test/5000 S.F. of each lift;
      Trench backfill testing shall be at least one (1) test/50 L.F. of each lift;

Subgrade and/or subbase testing shall be at least one (1) test/200 L.F. of pavement or /5000 S.F. of slabs; subject to greater frequency due to soil conditions or Engineer's direction.

c. Proctors or relative density tests shall be performed as often as necessary for the differing soils or granular materials utilized. Proctors shall be run with a minimum of 5 points. Test reports shall show the wet (bulk) weight, dry weight, wet (bulk) density, dry density, moisture content weight and moisture content percentage. Both the dry curve and the wet curve shall be plotted. The source materials shall be tested for gradation, Atterberg limits, shore-hydrometer and moisture content.

3. Concrete Mix Design
   a. For each type of concrete, the laboratory shall perform the necessary mix design providing all test data as required by the specifications.

4. Concrete Field and Laboratory Tests
   a. The laboratory shall cast concrete cylinders and test beams:
      1) One set of four cylinders per 50 C.Y. with a minimum of two sets per day. The cylinders shall be broken: one at 7 days, two at 28 days, one at 56 days, unless otherwise directed by the Engineer.
      2) One beam per 50 C.Y. with a minimum of two beams per day.
   b. Temperature and unit weight shall be run on fresh concrete at intervals sufficient for the type of structure being placed and a minimum of once per day. Bulk weight, bucket weight, (tare), net weight, bucket factor (bucket volume) and unit weight shall be recorded on the fresh concrete report. Show all batch weights for yield calculations. Slump and air content tests shall be taken a minimum of one test per 20 C.Y. and at least once per day.
   c. All field and laboratory testing shall be performed by technicians certified by the American Concrete Institute (ACI) for the type of testing performed.
   d. Initial cure of all cylinders shall be in a temperature controlled cure box or temperature controlled water tank with a hi-low thermometer. Hi-low temperature readings shall be recorded on the fresh concrete report.

5. Asphalt Mix Design
   a. For each type of asphalt mix, submit job mix formula (JMF) prepared by an ODOT pre-qualified laboratory from tests performed on the aggregates proposed for use.
   b. Sample and test for gradation and bitumen content as per ODOT 441.
   c. Asphalt compaction, thickness, and temperature tests shall be performed during asphalt placement per ODOT Item 448.

1.3 LABORATORY REPORTS

A. Reports of laboratory and field tests will be distributed to the Engineer, Owner, and Suppliers within 24 hours of completion.

END OF SECTION 013326.01

SECTION 013543 - ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

1.1 UNNECESSARY NOISE, DUST AND ODORS

A. The Contractor's performance of this contract shall be conducted so as to eliminate all unnecessary noise, dust and odors.

1.2 SEWAGE, SURFACE AND FLOOD FLOWS

A. The Contractor shall take whatever action is necessary to provide all necessary tools, equipment and machinery to adequately handle all sewage, surface flows and flood flows which may be encountered during the performance of the work. The entire cost of and liability for handling such flows is the responsibility of the Contractor and shall be included in the price for the appropriate item.

1.3 WORK IN FREEZING WEATHER

A. Written permission from the Engineer shall be obtained before any work is performed which, in the judgment of the Engineer, may be affected by frost, cold, or snow. When work is performed under such conditions, the Contractor shall provide facilities for heating the materials and for protecting the finished work.

1.4 POLLUTION CONTROL

A. It shall be the responsibility of the Contractor to prevent or limit pollution of air and water resulting from their operations.

B. The Contractor shall perform work required to prevent soil from eroding or otherwise entering onto all paved areas and into natural watercourses, ditches, and public sewer systems. This work shall conform to all local ordinances and/or regulations, if any, and if not otherwise regulated by local ordinances or regulations shall at a minimum conform to the Ohio EPA General Storm Water NPDES Permit for Construction Activities and the Ohio Department of Natural Resources Rainwater and Land Development manual. This work may consist of but not be limited to construction and continual maintenance of silt fence, bio bag filters, sedimentation traps, stilling basins, check dams, temporary seeding, temporary mulching, erosion mats and other means to clarify waters containing suspended materials from excavations, embankments, cleared and grubbed or stripped areas, stockpiles, well points, and disposal sites and shall be commensurate with the contractor's schedule, sequence of work, means and methods. If a SWPPP plan is not required for the project, the contractor shall at a minimum submit a plan of their proposed erosion control prevention methods for approval by the Owner and/or other regulatory authorities having jurisdiction prior to starting any construction activities which may cause erosion.

C. The Contractor shall perform work required to prevent dust attributable to their operations from entering the atmosphere. Dust on unsurfaced streets or parking areas and any remaining dust on surfaced streets shall be controlled with water and/or calcium chloride dust palliative as needed.

D. Any material removed from sanitary or storm sewers shall be disposed in accordance with all applicable regulations.

1.5 WILDLIFE AND VEGETATION

A. The Contractor shall not disturb or damage areas marked as protected wildlife, nature, habitats, or vegetated areas unless otherwise directed by the Engineer. It is the responsibility of the Contractor to verify these areas prior to submitting a bid submission whether detailed in plans or not. Any damage to these areas shall be restored by the Contractor for no additional costs to their existing state prior to construction along with any penalties enforced by any regulatory agency.

END OF SECTION 013543

SECTION 014126 - GENERAL REGULATIONS AND PERMITS

PART 1 - GENERAL

1.1 REGISTRATION

All Contractors and subcontractors shall be registered with the Building Department having jurisdiction. Contact the Building Department for additional registration information.

1.2 PERMITS

The Contractor shall apply for and pay for all permits from the Owner and/or other authorities having jurisdiction.

1.3 ARCHAEOLOGICAL DISCOVERIES

Contractors and subcontractors are required under Ohio Revised Code (O.R.C.) Section 149.53, to notify Ohio's State Historic Preservation Office (SHPO), and to cooperate with that office in archaeological and historic surveys and mitigation efforts if such discoveries are uncovered within the project area.

Contact: Ohio's State Historic Preservation Office
Diana Welling, Division Director & State Historic Preservation Officer
Phone: 1-614-298-2000
Email: dwelling@ohiohistory.org

Should archaeological discoveries or other activities delay progress of the work, an adjustment in contract time will be made.

END OF SECTION 014126

SECTION 014223 - INDUSTRY STANDARDS

PART 1 - GENERAL

1.1 ABBREVIATIONS

A. Abbreviations, as used, designate the following:

AASHTO	-	American Association of State Highway and Transportation Officials
ACI	-	American Concrete Institute
AIEE	-	American Institute of Electrical Engineers
AISC	-	American Institute of Steel Construction
ANSI	-	American National Standards Institute
ASTM	-	American Society of Testing and Materials
AWWA	-	American Water Works Association
CMS	-	Construction and Material Specifications
NASSCO	-	National Association of Sewer Service Companies
NEMA	-	National Electrical Manufacturers Association
ODOT	-	Ohio Department of Transportation
ORC	-	Ohio Revised Code
UL	-	Underwriters Laboratories, Inc.

1.2 REFERENCE TO OTHER SPECIFICATIONS

A. Where reference is made to specifications such as ASTM, AWWA or AASHTO, the latest edition shall be used, unless otherwise noted on the plans or in the specifications.

1.3 CODES AND STANDARDS

A. All work provided for by these specifications must be installed according to the provisions of the State and local building codes, subject to inspection and acceptance by the State and local inspectors.

END OF SECTION 014223

SECTION 014323 – QUALIFICATIONS OF TRADESMEN

PART 1 - GENERAL

1.1 CHARACTER OF WORKMEN AND EQUIPMENT

A. The Contractor shall employ competent and efficient workmen for every kind of work. Any person employed on the work who shall refuse or neglect to obey directions of the Owner or his representative, or who shall be deemed incompetent or disorderly, or who shall commit trespass upon public or private property in the vicinity of the work, shall be dismissed when the Owner so orders, and shall not be re-employed unless express permission be given by the Owner. The methods, equipment and appliances used on the work and the labor employed shall be such as will produce a satisfactory quality of work, and shall be adequate to complete the contract within the specified time limit.

B. In hiring of employees for the performance of work under this Contract, or any Subcontract hereunder, no Contractor or Subcontractor, nor any person acting on behalf of such Contractor or Subcontractor, shall, by reason of race, sex, creed or color, discriminate against any citizen of the State of Ohio in the work to which the employment relates. No Contractor, Subcontractor, nor any person on their behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under this contract on account of race, creed, sex or color.

END OF SECTION 014323

SECTION 015136 - TEMPORARY WATER AND DISTRIBUTION

PART 1 - GENERAL

1.1 WATER

A. The Contractor shall be responsible for an adequate supply of water suitable for their use for construction and drinking. At their own expense, they shall provide and maintain adequate supplies and supply lines in such locations and installed in such a manner as may be satisfactory to the Engineer.

B. If water is required for the work, the Contractor shall coordinate directly with the local water utility service provider (Lake County Department of Utilities) for acquiring a temporary billing meter and access to hydrants. No hydrant shall be opened or tampered with written consent from the utility owner representative.

END OF SECTION 015136

SECTION 015213 - FIELD OFFICES

PART 1 - GENERAL

1.1 CONTRACTOR'S OFFICE

A. Each Contractor shall provide and maintain an office on the site of the work during the construction period of the contract, at which they or their authorized agent shall be present at all times while the work is in progress.

END OF SECTION 015213

SECTION 015213.01 – FIRST AID

PART 1 - GENERAL

1.1 AID TO THE INJURED

A. The Contractor shall keep on the work site, all articles necessary for giving "First Aid to the Injured." They shall also have standing arrangements for the immediate removal and hospital treatment of any employee or other person who may be injured on the work site.

END OF SECTION 015213.01

SECTION 015526 - TEMPORARY TRAFFIC CONTROL DEVICES

PART 1 - GENERAL

1.1 BARRICADES, SIGNS AND LIGHTS

A. The Contractor shall employ watchmen on the work when and as necessary. The Contractor shall erect and maintain such strong and suitable barriers and such lights as will effectively prevent the occurrence of any accident to health, limb or property. Lights shall be maintained between the hours of one-half (1/2) hour after sunset and one-half (1/2) hour before sunrise.

B. No manhole, trench, excavation will be left open awaiting connection or removal at a later date by the Contractor's forces or others but shall be temporarily backfilled and resurfaced if applicable with a temporary pavement passable to traffic at no additional cost to the Owner.

C. In addition to other safety requirements, a minimum of four (4) foot high fence will be incorporated around any shaft or manhole or other excavation left open at the end of a day's work.

1.2 MAINTENANCE OF TRAFFIC

A. The Contractor shall maintain traffic in accordance with the Maintenance of Traffic (MOT) plan prepared by the Engineer and included in the Contract Documents, the Ohio Manual of Uniform Traffic Control Devices (OMUTCD), Item 614 of the current Ohio Department of Transportation Construction and Material Specifications, and all applicable local agency requirements.

B. The Contractor shall implement the MOT plan as shown on the Contract Drawings. Any proposed modification or other deviation from the Engineer-prepared MOT plan shall be submitted in writing and shall not be implemented without prior review and written approval by the Engineer and acceptance by the applicable governing agency having jurisdiction.

C. This work shall include providing suitable and satisfactorily trained and properly attired flagmen for use at any location where existing roadway is narrowed to a width of less than 2 full lanes (18 feet).

D. The Contractor is also responsible for maintaining local access to all residences and businesses along the route of the construction and to provide whatever temporary materials are necessary to provide a safe, adequate drive surface.

END OF SECTION 015526

SECTION 016600 - PRODUCT HANDLING AND PROTECTION

PART 1 - GENERAL

1.1 DELIVERY AND STORAGE OF MATERIALS

A. The Contractor shall be responsible for delivery and storage of all materials.

B. The Contractor shall coordinate with the Engineer on the arrangement for storing construction materials and equipment. Deliveries of all construction materials and equipment should be made at suitable times.

C. The Contractor shall store all materials required for the performance of this contract at sites designated by the Engineer.

D. All stockpiles shall be neat, compact, completely safe, and barricaded with warning lights if necessary.

E. Precautions shall be taken so that no shade trees, shrubs, flowers, sidewalks, driveways or other facilities will be damaged by the storage of materials. The Contractor shall be responsible for the restoration of all stockpile sites to their original condition.

F. Materials, tools and machinery shall not be piled or placed against shade trees, unless they shall be amply protected against injury therefrom. All materials, tools, machinery, etc. stored upon public thoroughfares must be provided with red lights at night time so as to warn the traffic of such obstruction.

G. Materials shall be so stored as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, shall again be inspected prior to their use in the work. Stored materials shall be located so as to facilitate their prompt inspection. Approved portions of the construction site may be used for storage purposes and for the placing of the Contractor's plant and equipment, but any additional space required therefore must be provided by the Contractor at their expense. Private property shall not be used for storage purposes without written permission of the property owner or lessee, and copies of such written permission shall be furnished the Engineer. All storage sites shall be restored to their original condition by the Contractor at their expense.

END OF SECTION 016600

SECTION 017800 - FINAL COMPLIANCE AND SUBMITTALS

PART 1 - GENERAL

1.1 The following forms and related sign-offs shall be documented in accordance with provisions of the contract. These forms shall be completed by the Contractor and approved by the Owner before final retainer is approved for release. Forms for Items A to E will be attached to the Contractor's executed copy of the contract.

A. Certificate of Substantial Completion (To be submitted at time of Substantial Completion).

B. Contractor's Certification of Completion.

C. Contractor's Affidavit of Prevailing Wage.

D. Consent of Surety Company for Final Payment.

E. Affidavit of Final Acceptance Date and Correction Period.

F. Before the OWNER will approve and accept the work and release the retainer, the CONTRACTOR will furnish the OWNER a written report indicating the resolution of any and all property damage claims filed with the CONTRACTOR by any party during the construction period. The information to be supplied shall include, but not be limited to, name of claimant, date filed with CONTRACTOR, name of insurance company and/or adjuster handling claim, how claim was resolved and if claim was not resolved for the full amount, a statement indicating the reason for such action.

G. Build America, Buy America Certifications (When Applicable).

END OF SECTION 017800

SECTION 017821 - CLEANING AND PROTECTION

PART 1 - GENERAL

1.1 GENERAL

A. On or before the completion date for the work, the Contractor shall tear down and remove all temporary structures built by them, all construction plant used by them, and shall repair and replace all parts of existing embankments, fences or other structures which were removed or injured by their operations or by the employees or subcontractors of the Contractor. The Contractor shall thoroughly clean out all buildings, sewers, drains, pipes, manholes, inlets and miscellaneous and appurtenant structures, and shall remove all rubbish leaving the grounds in a neat and satisfactory condition.

B. As circumstances require and when ordered by the Engineer, the Contractor shall clean the road, driveway, and/or sidewalk on which construction activity under this contract has resulted in dirt or any other foreign material being deposited with an automatic self-contained mechanical sweeper with integral water spray, vacuum and on-board or supplementary containment.

C. Failure to comply with this requirement when ordered by the Engineer or their representative, may serve as cause for the Engineer to stop the work and to withhold any monies due the Contractor until such order has been complied with to the satisfaction of the Engineer.

D. As the work progresses, and as may be directed, the Contractor shall remove from the site and dispose of debris and waste material resulting from his work. Particular attention shall be given to minimizing any fire and safety hazard from form materials or from other combustibles as may be used in connection with the work, which should be removed daily.

E. The Contractor shall wash all windows and other glass surfaces, leaving all areas free from putty marks, paint, etc.

F. During and after installation, the Contractor shall furnish and maintain satisfactory protection to all equipment against injury by weather, flooding or breakage thereby permitting all work to be left in a new condition at the completion of the contract.

END OF SECTION 017821

SECTION 017839 - PROJECT RECORDS, DRAWINGS

PART 1 - GENERAL

1.1 RECORD DRAWINGS

A. The Contractor shall furnish an authentic set of marked-up drawings showing the installation insofar as the installation shall have differed from the Engineer's drawings. The drawings shall be delivered to the Engineer for making revisions to the original drawings immediately after final acceptance by the Owner.

B. The Contractor shall furnish dimensioned drawings indicating locations of all underground improvements including any repairs performed necessary to facilitate the rehabilitation work.

C. Variations to the typical sections for the sewer rehabilitation including, but not limited to, material type, method, size, shape, or extent shall be properly noted and included in marked up set at the completion of work.

1.2 SERVICE CONNECTION RECORDS

A. The Contractor shall record the location of all service and property connections, new or existing, made to utilities constructed under this contract. Such records shall be turned over to the Owner upon completion of the work. The cost of making such records shall be included in the various unit or lump sum prices stipulated for the various items of the work.

END OF SECTION 017839

SECTION 024119 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

A. This section includes removal of pavement, piping, and equipment necessary to clear space for new construction and/or to rehabilitate existing construction.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

A. State and local code requirements shall control the disposal of debris resulting from the removal operation.

1.4 PROTECTION

A. Structures shall be removed in such a manner as not to damage portions of the existing structure which are to remain in place.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 PAVEMENTS, SIDEWALKS, CURBING, SIMILAR STRUCTURES

A. Removal of existing pavements, sidewalks, curbing, and similar structures shall end at an existing joint or a sawed joint. Sawed joints shall be straight, neat and free from chipped or damaged edges.

B. For removal of reinforced or non-reinforced concrete, the minimum depth of saw cut shall be 3 in. or as necessary to make clean and smooth removal of section of concrete.

C. For removal of reinforced concrete, the depth of saw cut shall be sufficient to cut the steel.

D. If the concrete is coated with a bituminous surface or other material, the depth shall be sufficient to cut into the concrete, not including the coating depth, as specified above.

3.2 EXCAVATION OF RIGID PAVEMENT

A. The Contractor shall excavate rigid pavement, consisting of concrete or concrete base with a wearing surface of brick or bituminous concrete, wherever such excavation is required for the purpose of this Contract.

B. Pavement shall be excavated to neat lines and, only to widths required for trenches, for pipe laying and for construction of structures. Adequate provision shall be made to prevent settlement and breakage of pavement beyond the approved limits of excavation.

C. All pavement broken or damaged beyond the limits above stated, or the approved extension thereof, shall be replaced by the Contractor at his expense.

3.3 CATCH BASINS, INLETS AND SIMILAR STRUCTURES

A. Existing drainage structure designated by the Engineer to be removed shall be completely removed.

B. Abandoned sewers shall be sealed and made watertight with approved masonry bulkheads.

C. All castings salvaged from abandoned or removed drainage structures shall remain the property of the Owner and shall be cleaned and transported by the Contractor to a site designated by the Engineer or incorporated in the work where called for on the Drawings, scheduled, or so directed.

3.4 FENCE

A. Where so required by the Drawings, existing fence shall be carefully dismantled and stored for reuse or for salvage by the Owner.

B. Wood posts and other materials not considered salvageable by the Engineer shall be disposed of by the Contractor.

C. The Contractor will be required to replace, at no cost to the Owner, material lost or damaged by negligence or by the use of improper methods.

3.5 EQUIPMENT REMOVAL

A. All equipment, valves, piping, fittings, and miscellaneous steel structures that are removed shall remain the property of the Owner and shall be stored at site selected by the Owner. The Owner reserves the right to require the Contractor to dispose of certain unwanted portions of removed equipment and materials. The Owner shall have the right to reject any or all materials removed during construction, and the Contractor shall haul away and dispose of these materials in a suitable manner at no additional cost to the Owner.

3.6 DISPOSAL OF DEBRIS

A. All debris resulting from demolition operations; i.e., broken concrete, masonry, pipe, miscellaneous metal, trees and brush, equipment, etc., shall be disposed of offsite.

B. The Contractor shall police the hauling of debris to insure that all spillage from haul trucks is promptly and completely removed.

3.7 BACKFILLING

A. All trenches, holes, and pits resulting from the removal and abandonment of any structure or obstruction shall be backfilled and compacted in accordance with the requirements of Section 310000.

END OF SECTION 024119

SECTION 030000 - CONCRETE WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
   1. Section 013319 – Field Testing Requirements

1.2 SUMMARY

A. This Section specifies cast-in place concrete, including form work, reinforcing, mix design, placement procedures and finishes.
   1. Extent of concrete work is shown on drawings.
   2. Concrete paving and walks are specified in Division 32.
   3. Precast concrete is specified in other Division-33 sections.

1.3 SUBMITTALS

A. Product Data: Submit data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials, and others as requested by Engineer.

B. Shop Drawings; Reinforcement: Submit original shop drawings prepared for fabrication, bending, and placement of concrete reinforcement. Comply with ACI Detailing Manual showing bar schedules, stirrup spacing, diagrams of bent bars, arrangement of concrete reinforcement. Include special reinforcement required for openings through concrete structures.

C. Shop Drawings; Form work: Submit shop drawings prepared by a registered Professional Engineer for fabrication and erection of forms for specific finished concrete surfaces. Show form construction including jointing, special form joint or reveals, location and pattern of form tie placement, and other items which affect exposed concrete visually.
   1. Engineer's review is for general architectural applications and features only. Design of form work for structural stability and efficiency is Contractor's responsibility.

D. Samples: Submit samples of materials as requested by Engineer, including names, sources, and descriptions.

E. Laboratory Test Reports: Submit laboratory test reports for concrete materials and mix design tests.
   1. The proposed mix design submittal(s) shall follow the procedures of Chapter 5, Sections 5.2 to 5.3 of ACI-318.
   2. Reference should be made to ACI-211.5R "Guide for Submittal of Concrete Proportions" for the required submittal information. Sample forms for presenting the necessary information can be found in the addendum at the end of this section.

Example Form B should follow a completed Example A in the submittal when laboratory trial batches are used to document a water-cementious materials ratio curve.

3. Additional data summarizing the past performance records should be an integral part of the submittal if the submittal is based on past performance with the proposed materials and proportions.

F. Materials Certificates: Provide materials certificates in lieu of materials laboratory test reports when permitted by Engineer. Materials certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with, or exceeds, specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.

1.4 QUALITY ASSURANCE

A. Codes and Standards: Comply with provisions of following codes, specifications, and standards, latest revisions, except where more stringent requirements are shown or specified:
   1. ACI 318 "Building Code Requirements for Reinforced Concrete."
   2. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice."
   3. ACI 347 "Guide to Form work for Concrete."
   4. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

B. Materials and installed work may require testing and retesting at anytime during progress of work. Tests, including retesting of rejected materials for installed work, shall be done at Contractor's expense.

C. Engage a testing agency acceptable to Engineer to perform initial material evaluation and certification tests for mix designs and to design concrete mixes.

D. Mockup: Cast mockup of size indicated or as required to demonstrate typical joints, form tie spacing, and proposed surface finish, texture, and color. Maintain sample panel exposed to view for duration of project, after Engineer's acceptance of visual qualities.
   1. Demolish mockup and remove from site when directed by Engineer.

E. Pre-installation Conference: Conduct conference at project site to comply with requirements of Division 1 Section "Project Meetings" and the following:
   1. At least 35 days prior to submitting design mixes, conduct a meeting to review detailed requirements for preparing concrete design mixes and to determine procedures for satisfactory concrete operations. Review requirements for submittals, status of coordinating work, and availability of materials. Establish preliminary work progress schedule and procedures for materials, inspection, testing and certifications. Require representatives of each entity directly concerned with cast-in-place concrete to attend conference, including, but not limited to, the following:
      a. Contractor's Superintendent
      b. Agency responsible for concrete design mixes.
      c. Agency responsible for field quality control.
      d. Ready-mix concrete producer.
      e. Concrete Subcontractor
      f. Primary admixture manufactures.

1.5 PROJECT CONDITIONS

A. Protection of Footings Against Freezing: Cover completed work at footing level with sufficient temporary or permanent cover as required to protect footings and adjacent subgrade against possibility of freezing; maintain cover for time period as necessary.

B. Protect adjacent finish materials against spatter during concrete placement.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

A. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.
   1. Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood," Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection trademark.

B. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least two (2) edges and one side for tight fit.

C. Forms for Textured Finish Concrete: Units of face design, size, arrangement, and configuration to match Engineer's control sample. Provide solid backing and form supports to ensure stability of textured form liners.

D. Forms for Cylindrical Columns and Supports: Metal, fiberglass reinforced plastic, or paper or fiber tubes. Construct paper or fiber tubes of laminated plies using water-resistant adhesive with wax-impregnated exterior for weather and moisture protection. Provide units with sufficient wall thickness to resist loads imposed by wet concrete without deformation.

E. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

F. Form Ties: Factory-fabricated, adjustable-length, snapoff metal or glass fiber-reinforced plastic form ties, designed to prevent form deflection and to prevent spalling concrete upon removal. Provide units which will leave no metal closer than 1-1/2" to the exposed surface.
   1. Provide ties which, when removed, will leave holes not larger than 1" diameter in concrete surface.
   2. All form ties shall have a factor of safety of two (2) to determine the recommended safe working load.

2.2 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

B. Galvanized Reinforcing Bars: ASTM A 767, Class II (2.0 oz. zinc psf) hot-dip galvanized, after fabrication and bending.

C. Epoxy-Coated Reinforcing Bars: ASTM A 775.
   1. Repair of damaged epoxy-coating - When required, damaged epoxy-coating shall be repaired with patching material conforming to ASTM A 775. Repair shall be done in accordance with the patching material manufacturer's recommendations.

D. Steel Wire: ASTM A 82, plain, cold-drawn steel.

E. Welded Wire Fabric: ASTM A 185, welded steel wire fabric. (Flat sheets only)

F. Welded Deformed Steel Wire Fabric: ASTM A 497.

G. Epoxy - Coated Welded Wire Fabric: ASTM A884, Class A.

H. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI specifications.
   1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
   2. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs which are plastic protected (CRSI, Class 1) or stainless steel protected (CRSI, Class 2).

2.3 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I, II or I/II and ASTM C595M, Type IP, unless otherwise specified. (See Table I, Concrete Requirements).
   1. Use one brand of cement throughout project, unless otherwise acceptable to Engineer.

B. Fly Ash: ASTM C 618, Class F.
   1. Limit use of fly ash to not exceed 25% of cement content by weight.

C. Ground Granulated Blast-Furnace Slag: ASTM C989, Grade 100 or 120.
   1. Limit use of granulated blast-furnace slag to not exceed 30% of cement content by weight.

D. Normal Weight Aggregates: ASTM C 33, and as herein specified. Provide aggregates from a single source for exposed concrete, with nominal maximum aggregate size of 1 inch.
   1. For exterior exposed surfaces, do not use fine or coarse aggregates containing spalling-causing deleterious substances.
   2. Local aggregates not complying with ASTM C 33 but which have shown by special test or actual service to produce concrete of adequate strength and durability may be used when acceptable to Engineer.
   3. Combined Aggregate Gradation: Well graded from coarsest to finest with not more than 18 percent and not less than 8 percent retained on an individual sieve, except

that less than 8 percent may be retained on coarsest sieve and on No. 50 (0.3-mm) sieve, and less than 8 percent may be retained on sieves finer than No. 50 (0.3 mm).

E. Lightweight Aggregates: ASTM C 330. Maximum nominal aggregate size of 1 inch.

F. Water: Drinkable and complying with ASTM C94.

G. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. "Air-Mix"; Euclid Chemical Co.
      b. "Sika Aer"; Sika Corp.
      c. "MB-VR or MB-AE"; Master Builders.

H. Water-Reducing Admixture: ASTM C 494, Type A, and containing not more than 0.1 percent chloride ions.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. "WRDA"; W.R. Grace.
      b. "Eucon WR-75"; Euclid Chemical Co.
      c. "Pozzolith Normal"; Master Builders.

I. High-Range Water-Reducing Admixture (Super Plasticizer): ASTM C 494, Type F and containing not more than 0.1 percent chloride ions.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. "Sikament 300"; Sika Chemical Corp.
      b. "Eucon 37"; Euclid Chemical Co.
      c. "Rheobuild or Polyheed"; Master Builders.

J. Water-Reducing, Non-Chloride Accelerator Admixture: ASTM C 494, Type E, and containing not more than 0.1 percent chloride ions.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. "Accelguard 80"; Euclid Chemical Co.
      b. "Pozzutec 20"; Master Builders.
      c. "Daraset"; W.R. Grace & Co.

K. Water-Reducing, Retarding Admixture: ASTM C 494, Type D, and containing not more than 0.1 percent chloride ions.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. "Pozzolith"; Master Builders.
      b. "Eucon Retarder 75"; Euclid Chemical Co.
      c. "Plastiment"; Sika Chemical Co.

L. Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.
   1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
   2. Products: Subject to compliance with requirements, provide one of the following:
      a. Catexol 1000CL; Axim Concrete Technologies.
      b. MCI 2000 or MCI 2005; Cortec Corporation.

c. DCI or DCI-S; W.R. Grace & Co., Construction Products Div.
d. Rheocrete 222+; Master Builders, Inc.
e. FerroGard-901; Sika Corporation.

M. Prohibited Admixtures: Calcium chloride thyocyanates or admixtures containing more than 0.1 percent chloride ions are not permitted.

N. Fiber Reinforcement:
1. Synthetic fiber reinforcing shall be added to the concrete for the areas so indicated in the drawings. Only fibers designed and manufactured specifically for use in concrete shall be acceptable as secondary reinforcement, complying with ASTM C1116, not less than 3/4 inch long.
2. The fibers may be added at the batch plant. The incorporation of said fibers shall be documented on the delivery ticket from the ready mix producer. Fibers shall be added to the concrete in strict accordance with manufacturer's printed instructions. The minimum dosage rate shall be 1.5 lbs/cubic yard.
3. Nylon fibers containing 100% virgin nylon monofilaments shall be utilized to impart a "non-hairy" surface to the finished concrete.
4. Products: Subject to compliance with requirements, provide the following fibrous reinforcement or approved equal:
a. Nycon Fiber; Nycon, Inc.
b. Nylo-Mono; Forta Corp.
c. Fibrasol N; Axim Concrete Technologies

2.4 RELATED MATERIALS

A. Reglets: Where resilient or elastomeric sheet flashing or bituminous membranes are terminated in reglets, provide reglets of not less than 26 gage galvanized sheet steel. Fill reglet or cover face opening to prevent intrusion of concrete or debris.

B. Waterstops: Provide waterstops at construction joints and other joints.

C. Granular Base: Evenly graded mixture of fine and coarse aggregates to provide, when compacted, a smooth and even surface below slabs on grade.

D. Vapor Retarder: Provide vapor retarder cover, ASTM E1745 Class C, over prepared base material where indicated below slabs on grade. Use only materials which are resistant to deterioration when tested in accordance with ASTM E 154, as follows:
1. Polyethylene sheet not less than 10 mils thick.
2. Water resistant barrier paper consisting of heavy Kraft papers laminated together with glass fiber reinforcement and over-coated with black polyethylene on each side.
a. Product: Subject to compliance with requirements, provide Moistop Ultra 10 by Fortifiber Corporation, Stego Wrap 10-mil by Stego Industries or equal.

E. Non-Shrink Grout: CRD-C 621 and ASTM C-1107, factory pre-mixed grout.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Non-metallic
1) "Set Grout"; Master Builders.
2) "Euco-NS"; Euclid Chemical Co.
3) "Five Star Grout"; U.S. Grout Corp.

F. Non-slip Aggregate Finish: Provide fused aluminum oxide grits, or crushed emery, as abrasive aggregate for non-slip finish with emery aggregate containing not less than 50 percent aluminum oxide and not less than 25 percent ferric oxide. Use material that is factory-graded, packaged, rust-proof, and non-glazing, and is unaffected by freezing, moisture, and cleaning materials.

G. Colored Wear-Resistant Finish: Packaged, dry, combination of materials, consisting of Portland cement, graded quartz aggregate, coloring pigments, and plasticizing admixture. Use coloring pigments that are finely ground, non-fading mineral oxides, interground with cement. Color as selected by Engineer, unless otherwise indicated.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. "Colorcron"; Master Builders.
      b. "Surflex"; Euclid Chemical Co.
      c. "Lithochrome"; L.M. Scofield Co.

H. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.

I. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.
   1. Waterproof paper.
   2. Polyethylene film.
   3. Polyethylene-coated burlap.

J. Liquid Membrane-Forming Curing Compound: Liquid type membrane- forming curing compound complying with ASTM C 309, Type I, Class A. Moisture loss not more than 0.55 kg./sq. m. when applied at 200 sq ft./gal.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. "Masterkure"; Master Builders.
      b. "Ecocure"; Euclid Chemical Co.
      c. "Horn Clear Seal"; A.C. Horn, Inc.

K. Underlayment Compound: Freeflowing, self-leveling, pumpable cementitious base compound for applications from 1 inch thick to feathered edges.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. "Flo-Top"; Euclid Chemical Co.
      b. "Underlayment 110," Master Builders, Inc.
      c. "Thoro Underlayment Self-Leveling"; Thoro System Products.

L. Bonding Compound: Polyvinyl acetate or acrylic base.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Polyvinyl Acetate (Interior Only):
         1) "Euco Weld"; Euclid Chemical Co.
         2) "Weldcrete"; Larsen Products Corp.
         3) "Everweld"; L&M Construction Chemicals, Inc.
      b. Acrylic or Styrene Butadiene:
         1) "Day-Chem AD Bond"; Dayton Superior Corp.
         2) "Everbond"; L & M Construction Chemicals.
         3) "SBR Latex"; Euclid Chemical Co.

M. Epoxy Adhesive: ASTM C 881, two component material suitable for use on dry or damp surfaces. Provide material "Type," "Grade," and "Class" to suit project requirements.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. "Epoxtite Binder 2390"; A.C. Horn, Inc.
      b. "Sikadur 32 Hi-Mod"; Sika Chemical Corp.
      c. "Euco Epoxy 452 or 620"; Euclid Chemical Co.

2.5 PROPORTIONING AND DESIGN OF MIXES

A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301 and ACI 211. If the trial batch method is used, use an independent testing facility acceptable to Engineer for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to Engineer.
   1. Limit use of fly ash to not exceed 25 percent of cement content by weight.

B. Submit written reports to Engineer and Structural Engineer of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by Engineer.

C. Design mixes to provide normal weight concrete with the following properties, as indicated in Table I.:

TABLE 1

CONCRETE REQUIREMENTS

Concrete Class	Cement Type	Min. 28-Day Compressive Strength PSI	*Max. Water-Cement Ratio	Min. Cement Content Sacks	Slump Min.	Inch Max.	Entrained Air %
A	I	4000	0.45	6	-	-	6±1
B	I	2000	0.74	4-1/2	2	6	5±1-1/2
C	I	4000	0.50	6.38	1	4	6±2
D	II or IP	4000	0.45	6	-	-	6±1

*Maximum Water - Cementitious Materials Ratio

   1. All reinforced concrete shall be Class QC1, except as otherwise specified or shown on the drawings.
   2. Concrete used for mud mats, fill and channeling in manholes and chambers shall be Class QC Misc unless otherwise noted on the drawings.
   3. Class QC-MS concrete conforming to ODOT 499 shall be used for all concrete pavement, curbing, driveways, and sidewalks, unless noted otherwise on the drawings.
   4. Class QC Misc concrete may be used for encasing pipelines, fill, and pipe bedding.
   5. Class QC Misc concrete shall be used as concrete fill in concrete tanks for shaping or sloping bottoms.
      a. The following steps shall be taken for installation of the Class QC Misc concrete:

1) Scrub concrete slabs and/or walls with a stiff wire brush and streams of clean water as a minimum, to remove laitenance.
2) Apply a bonding agent in accordance with the manufacturer's surface preparation and application recommendations.
3) The Class QC Misc concrete shall then be placed and screeded to bring the surface to final grade.

6. Class QC2 concrete shall be used for sewerage treatment plants and sewerage pump stations, as noted on the drawings.

D. Lightweight Concrete: Lightweight aggregate and concrete shall conform to ASTM C 330. Proportion mix to produce concrete with a minimum compressive strength of 3000 psi at 28 days and a calculated equilibrium unit weight of 110 pcf plus or minus 3 pcf as determined by ASTM C 567. Concrete slump at the point of placement shall be the minimum necessary for efficient mixing, placing, and finishing. Maximum slump shall be 6 inches for pumped concrete and 5 inches elsewhere. Air entrain concrete exposed to weather according to ACI 301 requirements.

E. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Engineer. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Engineer before using in work.

F. Admixtures:
1. Use high range water-reducing admixture (super plasticizer) in Classes A and D concrete unless noted otherwise.
2. Use non-chloride accelerating admixture in concrete slabs placed at ambient temperatures below 50 deg F (10 deg C).
3. Use air-entraining admixture in all concrete, unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content within limits shown in Table I.
4. Use admixtures for water-reducing and set-control in strict compliance with manufacturer's directions.
5. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as shown in Table I:

a. Concrete containing HRWR admixture (super-plasticizer): Not more than 8" after addition of HRWR to site-verified 2"-3" slump concrete.

2.6 CONCRETE MIXING

A. Job-Site Mixing: Mix materials for concrete in appropriate drum type batch machine mixer. For mixers of one cu. yd., or smaller capacity, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released. For mixers of capacity larger than one cu. yd., increase minimum 1-1/2 minutes of mixing time by 15 seconds for each additional cu. yd., or fraction thereof.
1. Provide batch ticket for each batch discharged and used in work, indicating project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.

B. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.
   1. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required.

      a. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 GENERAL

A. Coordinate the installation of joint materials and vapor retarders with placement of forms and reinforcing steel.

3.2 FORMS

A. Design, erect, support, brace, and maintain form work to support vertical and lateral, static, and dynamic loads that might be applied until such loads can be supported by concrete structure. Construct form work so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain form work construction tolerances complying with ACI 347.

B. Design form work to be readily removable without impact, shock, or damage to cast-in-place concrete surfaces and adjacent materials.

C. Construct forms to sizes, shapes, lines, and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.

D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.

E. Provide temporary openings where interior area of form work is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings on forms at inconspicuous locations.

F. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

G. Provisions for Other Trades: Provide openings in concrete form work to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.

H. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before concrete is placed. Retightening forms and bracing after concrete placement if required to eliminate mortar leaks and maintain proper alignment.

3.3 VAPOR RETARDER INSTALLATION

A. Following leveling and tamping of granular base for slabs on grade, place vapor retarder sheeting with longest dimension parallel with direction of pour.

B. Lap joints 6" and seal with manufacturer's recommended mastic or pressure-sensitive tape.

3.4 PLACING REINFORCEMENT

A. Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports, and as herein specified.
   1. Avoiding cutting or puncturing vapor retarder during reinforcement placement and concreting operations. Repair damages before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials which reduce or destroy bond with concrete.

C. Accurately position, support, and secure reinforcement against displacement by form work, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.

D. Place reinforcement to obtain at least minimum coverages for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire fabric in longest lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

F. Epoxy - Coated Reinforcing Steel:
   1. Epoxy-coated reinforcing bars supported from form work shall rest on coated wire bar supports, or on bar supports made of dielectric material or other acceptable materials. Wire bar supports shall be coated with dielectric material for a minimum distance of 2 inches from the point of contact with the epoxy-coated reinforcing bars. Reinforcing bars used as support bars shall be epoxy-coated.
      In walls having epoxy-coated reinforcing bars, spreader bars where specified by the Engineer, shall be epoxy-coated. Proprietary combination bar clips and spreaders

used in walls with epoxy-coated reinforcing bars shall be made of corrosion-resistant material.

2. Epoxy-coated reinforcing bars - Equipment for handling epoxy-coated bars shall have protected contact areas. Bundles of coated bars shall be lifted at multiple pick-up points to minimize bar-to-bar abrasion from sags in the bundles. Coated bars or bundles of coated bars shall not be dropped or dragged. Coated bars shall be stored on protective cribbing. Fading of the color of the coating shall not be cause for rejection of epoxy-coated reinforcing bars. Coating damage due to handling, shipment and placing need not be repaired in cases where the damaged area is 0.1 square inches or smaller. Damaged areas larger than 0.1 square inches shall be repaired in accordance with the epoxy material manufacturer's recommendations. The maximum amount of damage including repaired and unrepaired areas shall not exceed 2 percent of the surface area in each linear foot of each bar.

3.5 JOINTS

A. Construction Joints: Locate and install construction joints as indicated or, if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to Engineer.
   1. Provide keyways at least 1-1/2" deep in construction joints in walls, slabs, and between walls and footings; accepted bulkheads designed for this purpose may be used for slabs.
   2. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints, except as otherwise indicated.

B. Waterstops: Provide waterstops in construction joints as indicated. Install waterstops to form continuous diaphragm in each joint. Make provisions to support and protect exposed waterstops during progress of work. Fabricate field joints in waterstops in accordance with manufacturer's printed instructions.

C. Isolation Joints in Slabs-on-Ground: Construct isolation joints in slabs-on-ground at points of contact between slabs-on-ground and vertical surfaces, such as column pedestals, foundation walls, grade beams, and elsewhere as indicated.
   1. Joint filler and sealant materials are specified in Section 030000.02 of these specifications.

D. Contraction (Control) Joints in Slabs-on-Ground: Construct contraction joints in slabs-on-ground to form panels of patterns as shown. Use inserts 1/4 of slab depth, unless otherwise indicated.
   1. Form contraction joints by inserting premolded plastic strips into fresh concrete until top surface of strip is flush with slab surface.
   2. Follow the directions of Insert Manufacturer for finishing the slab and joints.

E. If joint pattern not shown, provide joints not exceeding 15' in either direction and located to conform to bay spacing wherever possible (at column centerlines, half bays, third-bays).
   1. Joint sealant material is specified in Section 030000.02 of these specifications.

3.6 INSTALLATION OF EMBEDDED ITEMS

A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached thereto. Electrical conduit shall not be embedded in concrete.

B. Install reglets to receive top edge of foundation sheet waterproofing, and to receive thru-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, relieving angles, and other conditions.

C. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure units to support screed strips using strike-off templates or compacting type screeds.

3.7 PREPARATION OF FORM SURFACES

A. Clean re-used forms of concrete matrix residue, repair and patch as required to return forms to acceptable surface condition.

B. Coat contact surfaces of forms with an approved, nonresidual, low-VOC, from-coating compound before placing reinforcement.

C. Thin form-coating compounds only with thinning agent of type, amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

D. Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel form work is not acceptable.

3.8 CONCRETE PLACEMENT

A. Preplacement Inspection: Before placing concrete, inspect and complete form work installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.
   1. Apply temporary protective covering to lower 2' of finished walls adjacent to poured floor slabs and similar conditions, and guard against spattering during placement.

B. General: Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete," and as herein specified.
   1. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.

C. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI 309.
2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.

D. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.

1. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Bring slab surfaces to correct level with straightedge and strikeoff. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
3. Maintain reinforcing in proper position on chairs during concrete placement operations.

E. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.

1. When air temperature has fallen to or is expected to fall below 40 deg F (4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C), and not more than 80 deg F (27 deg C) at point of placement.
   a. The concrete shall be maintained within this temperature range for not less than seven (7) days.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials or against cold reinforcing steel.
3. Do not use calcium chloride, salt, and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.

F. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.

1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 deg F (32 deg C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing water. Use of liquid nitrogen to cool concrete is Contractor's option.

2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
3. Fog spray forms, reinforcing steel, and subgrade just before concrete is placed.
4. Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, as acceptable to Engineers.

3.9 FINISH OF FORMED SURFACES

A. Rough Form Finish: For formed concrete surfaces not exposed-to- view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.

B. Smooth Form Finish: For formed concrete surfaces exposed-to-view, or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or other similar system. This is an as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed; provide smooth rubbed finish to smooth form finish. Refer to "Concrete Surface Repairs."

C. Smooth Rubbed Finish: Provide smooth rubbed finish to scheduled concrete surfaces, which have received smooth form finish treatment.
1. Scarify or roughen entire surface by grinding or similar effective means.
2. Combined one part Portland cement to 1-1/2 parts fine sand by volume and a 50:50 mixture of acrylic or styrene butadiene-based bonding admixture and water to form the consistency of thick paint. Blend standard Portland cement and white Portland cement, amounts determined by trial patches, so that final color of dry grout will match adjacent surfaces.
3. Thoroughly wet concrete surfaces and apply grout to coat surfaces and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray for at least 36 hours after rubbing.
4. Repeat the above process if necessary to fill voids or bug holes and obtain a consistent match to adjacent surfaces, subject to acceptance of the Engineer.

D. Grout Cleaned Finish: Provide grout cleaned finish on scheduled concrete surfaces which have received smooth form finish treatment.
1. Scarify or roughen entire surface by grinding or similar effective means.
2. Apply Thoroseal plaster mix coating by Thoro System Products or approved equivalent with an approximate thickness of 1/8-inch to ¼-inch.
3. Follow the manufacturer's recommendations and guidelines regarding surface preparation, application methods and curing.
4. Repeat the above process if necessary to fill voids or bug holes and obtain a consistent match to adjacent surfaces, subject to acceptance of the Engineer.

E. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture

matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.10 MONOLITHIC SLAB FINISHES

A. Scratch Finish: Apply scratch finish to monolithic slab surfaces that are to receive concrete floor topping or mortar setting beds for tile, Portland cement terrazzo, and other bonded applied cementitious finish flooring material, and as otherwise indicated.
   1. After placing slabs, plane surface to tolerances for floor flatness F(F) 15 and floor levelness F(L) 13, measured according to ASTM E 1155. Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set, with stiff brushes, brooms, or rakes.

B. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified, and slab surfaces which are to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo, and as otherwise indicated.
   1. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both, Consolidate surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units. Check and level surface plane to tolerances of F(F) 18 F(L) 15. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.

C. Trowel Finish: Apply trowel finish to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or other thin film finish coating system.
   1. After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with surface leveled to tolerances of F(F), 20 and F(L) 17, measured according to ASTM E1155. Grind smooth surface defects which would telegraph through applied floor covering system.

D. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, apply trowel finish as specified, then immediately follow with slightly scarifying surface by fine brooming.

E. Non-Slip Broom Finish: Apply non-slip broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
   1. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with Engineer before application.

F. Non-slip Aggregate Finish: Apply non-slip aggregate finish to concrete stair treads, platforms, ramps, sloped walks, and elsewhere as indicated.
   1. After completion of float finishing, and before starting trowel finish, uniformly spread 25 lbs. of dampened non-slip aggregate per 100 sq. ft. of surface. Tamp

aggregate flush with surface using a steel trowel, but do not force below surface. After broadcasting and tamping, apply trowel finishing as herein specified.

2. After curing, lightly work surface with a steel wire brush, or an abrasive stone, and water to expose non-slip aggregate.

G. Colored Wear-Resistant Finish: Provide colored wear-resistant finish to monolithic slab surface indicated.

1. Apply dry shake materials for colored wear-resistant finish at rate of not less than 100 lbs. per 100 sq. ft., unless greater amount is recommended by material manufacturer.
2. Immediately following first floating operation, uniformly distribute approximately 2/3 of required weight of dry shake material over concrete surface, and embed by means of power floating. Follow floating operation with second shake application, uniformly distributing remainder of dry shake material with overlapping applications, and embed by power floating.
3. After completion of broadcasting and floating, apply trowel finish as herein specified. Cure slab surface with curing compound recommended by dry shake hardener manufacturer. Apply curing compound immediately after final finishing.

3.11 CONCRETE CURING AND PROTECTION

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Protect concrete from rapid moisture loss before and during finishing operations.

1. The evaporation graph, Figure 1, of ACI 308 - Curing Concrete, shall be used to determine the evaporation rate during concrete placement. If the rate of evaporation equals or exceeds 0.2 lbs/sq.ft./hr., steps shall be taken to prevent excessive evaporation from the surface.
2. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing.

    a. Initial curing may be any of the methods listed herein that maintain a satisfactory moisture content and temperature.

3. Begin final curing procedures, if they differ from initial curing, immediately following initial curing and before concrete has dried. Continue curing for at least seven (7) days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

B. Curing Methods: Perform curing of all structural concrete as herein specified.

1. Provide moisture curing by following methods.
    a. Keep concrete surface continuously wet by covering with water.
    b. Continuous water-fog spray.
    c. Cover concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.

2. Provide moisture-cover curing as follows:

a. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

C. Provide curing and sealing compound to pavement, walks, and curbs only, as follows:

1. Apply specified curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours) and after surface water sheen has disappeared. Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within three (3) hours after initial application. Maintain continuity of coating and repair damage during curing period.

D. Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs, and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

E. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by moist curing methods.

1. Final cure concrete surfaces to receive liquid floor hardener or finish flooring by use of moisture-retaining cover, unless otherwise directed.

3.12 REMOVAL OF FORMS

A. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for five (5) days after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.

B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements, may not be removed in less than 14 days or until concrete has attained at least 75 percent of design minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members. Lab cured cylinders will not be considered.

C. Form facing material may be removed five (5) days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

3.13 RE-USE OF FORMS

A. Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated, or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new form work.

B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Engineer.

3.14 MISCELLANEOUS CONCRETE ITEMS

A. Filling-In: Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

3.15 CONCRETE SURFACE REPAIRS

A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Engineer.
   1. Saw-cut out honeycomb, rock pockets, voids over 1/4" in any dimension, down to solid concrete but, in no case to a depth of less than 1." Make edges of cuts slightly undercut to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.
   2. For exposed-to-view surfaces, blend white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

B. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Engineer. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surface; and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with Portland Cement patching mortar, or precast cement cone plugs secured in place with bonding agent. When other materials are used, apply them in accordance with manufacturer's recommendations.

   1. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.
   2. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness using a template having required slope.
   3. Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non-reinforced sections

regardless of width, spalling, pop-outs, honeycomb, rock pockets, and other objectionable conditions.

4. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.
5. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Engineer.
6. Repair defective areas, except random cracks and single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4" clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
7. Repair isolated random cracks and single holes not over 1" in diameter by dry-pack method. Groove top of cracks and cut-out holes to sound concrete and clean of dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry pack after bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.
8. Perform structural repairs with prior approval of Engineer or Structural Engineer for method and procedure, using specified epoxy adhesive and mortar.
9. Repair methods not specified above may be used, subject to acceptance of Engineer.
10. Underlayment Application: Leveling of floors for subsequent finishes may be achieved by use of specified underlayment material.

ADDENDUM
EXAMPLE FORM A

CONCRETE SUPPLIER:_____

PROJECT:_____ CONTRACTOR:_____

MIXTURE ID:_____ SPECIFIED f'c:_____PSI

MATERIAL MIXTURE PROPORTIONS lbs-mass/cu.yd. (pcy)

1.0 Cement Type_____ Source:_____

Sp. Gr._____ _____pcy _____cu. ft.

1.1 Other Cementitious Materials:_____ Class:_____ Source:_____

Sp. Gr._____ _____pcy _____cu. ft.

2.0 Aggregate (No. 1) Type:_____ Size:_____ Source:_____

SSD Sp. Gr._____ _____pcy _____ cu. ft.

Dry Rodded Unit Wt.:_____pcf

Alternate (No. 1) Lightweight Aggregate Type:_____ Size:_____Source:_____

Sp. Gr. Factor _____ over dry pcy _____ cu. ft.

Loose Unit Wt._____pcf Estimated Wet_____pcf

2.1 Aggregate (No. 2) Type:_____ Size:_____ Source:_____

SSD Sp. Gr._____ _____pcy _____cu. ft.

Dry Rodded Unit Wt.: _____pcf (If Fine Sized - FM _____)

2.2 Aggregate (Nos. 3, 4, n) Type:_____ Size:_____ Source:_____

SSD Sp. Gr._____ _____pcy _____cu. ft.

Dry Rodded Unit Wt.: _____pcf

3.0 Water: _____gal. _____pcy _____cu. ft.

EXAMPLE FORM A (CONTINUED)

4.0 Admixtures expressed as fluid ounces/cubic yard, and estimated range

Source:_____ Name:_____ Type_____ _____oz

Source:_____ Name:_____ Type_____ _____oz

Source:_____ Name:_____ Type_____ _____oz

Total Admixture Liquid Vol. _____ cu. ft.

(*) Note: Show volume in 4.0 if not included in cubic feet of air or water.

5.0 Other Materials - fibers, color pigment or other additions

Sp. Gr._____ _____pcy _____cu. ft.

Total Mixture Mass and Volume: _____pcy _____cu. ft.

Fresh Concrete Properties

Slump _____ +/-_____ in.

Unit Weight _____ pcf

Air Content _____+/-_____%

If Trail Batch Data -

Identify Batch No. _____

Batch Date _____

Concrete Temp._____°F

Comp. Strength-Average _____°F

Coarse & Fine Aggregate Gradation

Percent Passing

Sieve Size	Aggregate No. 1	2	3	4	Combined
2 in.	____	____	____	____	_____
1-1/2 in.	____	____	____	____	_____
1 in.	____	____	____	____	_____
3/4 in.	____	____	____	____	_____
1/2 in.	____	____	____	____	_____
3/8 in.	____	____	____	____	_____
No. 4	____	____	____	____	_____
No. 8	____	____	____	____	_____
No. 16	____	____	____	____	_____
No. 30	____	____	____	____	_____

EXAMPLE FORM A (CONTINUED)

7 day avg. _____psi	No. 50	____ ____ ____ ____ _____
28 day avg. _____psi	No. 100	____ ____ ____ ____ _____
	No. 200	____ ____ ____ ____ _____

Comments:_____

_____

Signature: _____ Date:_____

Title: _____

Organization: _____

EXAMPLE FORM B

CONCRETE SUPPLIER:_____

MATERIAL	TRAIL BATCH NUMBER - proportions per cubic yard			
	1	2	3	4
1.0 Cement Source: _____				
Type ____	_____lb	_____lb	_____lb	_____lb
1.1 Other Cementitious Material Sources:_____				
Type ____	_____lb	_____lb	_____lb	_____lb
2.0 Aggregate No. 1 Size_____ Source:_____				
SSD ____	_____lb	_____lb	_____lb	_____lb
Alternate No. 1 Lightweight Aggregates Type _____ Source: _____				
Sp. Gr. Factor _____				
Oven Dry	_____lb	_____lb	_____lb	_____lb
Wet	_____lb	_____lb	_____lb	_____lb
2.1 Aggregate No. 2 Size_____ Source:_____				
SSD ____	_____lb	_____lb	_____lb	_____lb
2.2 Aggregate Nos. 3, 4, n) Size_____Source:_____				
SSD ____	_____lb	_____lb	_____lb	_____lb
3.0 Water	_____lb	_____lb	_____lb	_____lb
4.0 Admixtures Source: _____				
_____ Type _____	_____oz	_____oz	_____oz	_____oz
_____ Type _____	_____oz	_____oz	_____oz	_____oz
_____ Type _____	_____oz	_____oz	_____oz	_____oz

EXAMPLE FORM B (CONTINUED)

5.0 Other Materials

_____ Type _____ _____lb _____lb _____lb _____lb

_____

Total Mass: _____lb _____lb _____lb _____lb

Total Mass/cy: _____pcy _____pcy _____pcy _____pcy

Relative Cubic Yard Volume:
_____cy _____cy _____cy _____cy

Water-Cementitious Material Ratio:

Fresh Concrete Properties

TRAIL BATCH NUMBER

	## -1	## -2	## -3	## -4
Slump-inches	_____	_____	_____	_____
Air-Content %	_____	_____	_____	_____
Unit Wt. pcf	_____	_____	_____	_____
Concrete Temp. °F	_____	_____	_____	_____

Compressive Strength Results (ASTM C192, C39) or Other Specified Test Requirements

7 days	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
Average (7 day)	_____	_____	_____	_____

EXAMPLE FORM B (CONTINUED)

28 days	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
Average (28 day)	_____	_____	_____	_____
Water-Cementitious Material Ratio:				
	_____	_____	_____	_____

Signature: _____ Date:_____

Title:_____

Organization: _____

END OF SECTION 030000

SECTION 310000 - EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. The Work covered by this Section shall include all excavation, trenching and related work for the construction of the designated structures and pipelines, backfill and other incidental work.

B. The Work covered by this Section consists of:
1. making all necessary excavations for the construction of all Work;
2. preparing subgrade for foundations, slabs, walks, and pavements;
3. doing all pumping, fluming, and dewatering necessary to keep the trenches and other excavation free from water;
4. providing for uninterrupted flow of existing drains and sewers, and the disposal of water from any sources during the progress of the Work;
5. supporting and protecting all trench walls, structures, pipes, conduits, culverts, posts, poles, wires, fences, buildings and other public and private property adjacent to the Work;
6. removing and replacing existing sewers, culverts, pipelines and bulkheads where necessary;
7. removing after completion of the Work all sheeting and shoring or other soil support materials not necessary to support the sides of trenches;
8. removing and disposing all surplus excavated material;
9. doing all backfilling and grading, of compacting backfill to limits specified or ordered by the Engineer;
10. restoring all property damaged as a result of the Work involved in this Contract.

C. The Work includes transporting surplus excavated materials not needed for backfill at the location where the excavation is made, to other parts of the Work where filling is required, and disposal of all types of surplus material off the site.

D. The work shall include but is not limited to excavation of trenches for installation of sanitary sewer pipes, placement of subgrade or base materials for pavement and walk, and any earthwork activities related to improvements detailed in the plans.

1.2 RELATED DOCUMENTS AND SECTIONS

A. Section 013319 – Field Testing Requirements

B. Section 030000 - Concrete Work

1.3 DEFINITIONS

A. Backfill: Soil or granular materials used to fill an excavation.
   1. Initial Backfill: Backfill placed beside and over pipe in a trench, not including haunches to support sides of pipe.
   2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Bedding: Layer placed over the excavated subgrade in a trench before laying pipe.

C. Borrow: Satisfactory soil imported for use as fill or backfill.

D. Excavation: Removal and disposal of material encountered above subgrade or foundation elevations.
   1. Additional Excavation: Excavation below subgrade or foundation elevations as directed by Engineer.
   2. Trench: Narrow linear excavation
   3. Unauthorized Excavation: Excavation below subgrade or foundation elevations or beyond indicated dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.
   4. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of surface or subsurface conditions encountered, including rock, soil materials and obstructions.

E. Embankment: A structure consisting of soil, granular material, shale, rock, or other approved material, constructed in layers to a predetermined elevation and cross-section.

F. Granular materials: Natural aggregate, such as broken or crushed rock, gravel, or sand that can be readily incorporated into an 8-inch layer, and in which at least 65% by weight of the grains or particles are retained in a No. 200 sieve.

G. Laboratory Dry Weight: The maximum laboratory dry weight shall be the weight provided by the laboratory when the sample is tested in accordance with ASTM D-698 Method A, C, or D.

H. Optimum Moisture: The water content at which the maximum density is produced in a soil by a given compaction effort (ASTM D-698).

I. Pavement Prism: Also referred to as the zone of influence. The area below a line drawn 45 degrees to the horizontal from the surface at the edge of pavement, sidewalk or curb.

J. Pipe Embedment: The material placed in a trench surrounding a pipe or conduit consisting of the foundation, bedding, haunching, and initial backfill.

K. Rock: Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material one (1) cu. yd. or more in volume that when tested by

an independent geotechnical testing agency, according to ASTM D 1586, exceeds a standard penetration resistance of 100 blows/2 inches.

L. Shale: Laminated material, formed by the consolidation in nature of soil, having a finely stratified structure. For the purpose of these specifications, the following bedrock types shall also be considered shale: mudstone, claystone, siltstone and hard clay.

M. Soil: All earth materials, organic or inorganic, which have resulted from natural processes such as weathering, decay, and chemical reaction.

N. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, pavement, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

O. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage course, or topsoil materials.

P. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 SUBMITTALS

A. Comply with all provisions of Section 013323, Shop Drawings and Submittals.

B. Product Data: For the following:
   1. Source-locations of all materials shall be identified to the Engineer.
   2. Source quality laboratory test of all fill materials as required to show compliance with material specifications.

C. Shop Drawings: Submit information for the following items:
   1. Dewatering system and standby equipment.
   2. Excavation procedures.

1.5 REFERENCES

A. AASHTO M 43 Standard Specification for Size of Aggregate for Road and Bridge Construction

B. ASTM C-150 Standard Specification for Portland Cement

C. ASTM C-618 Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete

D. ASTM D-698 Standard Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5-lb (2.49-kg) Rammer and 12-in. (305-mm) Drop

E. ASTM D-1586 Standard Method for Penetration Test and Split-Barrel Sampling of Soils

F. ASTM D-2487 Standard Test Method for Classification of Soils for Engineering Purposes

G. ASTM D-2940 Standard Specification for Graded Aggregate Material for Bases or Subbases for Highways or Airports

H. ASTM D-4253 Standard Test Method for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table

I. ASTM D-4254 Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density

J. State of Ohio - Department of Transportation - Construction and Material Specifications, Item 304, Aggregate Base.

K. State of Ohio - Department of Transportation - Construction and Material Specifications, Material Detail 703.16, Suitable Materials for Embankment Construction.

L. State of Ohio - Department of Transportation - Construction and Material Specifications, Material Detail 703.02.A.2, Fine Aggregate for Portland Cement Concrete

1.6 QUALITY ASSURANCE

A. Qualifications - Work shall be performed by personal meeting requirements identified in section 014323 – Qualifications of Tradesmen.

B. Regulatory Requirements – The proposed work shall meet all standards and regulatory requirements set forth by the Ohio Environmental Protection Agency (OEPA)

C. Certifications – The Contractor shall provide certification that all materials meet requirements identified in plans, specifications, and bid/contract documents.

D. Field Samples – All testing of native soils, bedding and backfill materials, and pavement base materials shall be in accordance with requirements identified in section 013319 – Field Test Reporting.

F. Pre-Construction Conference – The Contractor, Engineer, and Owner shall meet at a minimum ten (10) business days prior to the mobilization of equipment and materials to the project site. No work shall commence until a pre-construction meeting is held and the work plan by the Contractor is approved by the Engineer.

1.7 PROJECT CONDITIONS

A. Environmental Requirements

1. All excavation work shall be performed in accordance with erosion control and stormwater pollution prevention measures detailed in section 015713 – Temporary Erosion Control.

B. Existing Conditions

1. Existing ground elevations of the site are shown by figures and/or by contours on the Drawings. The contours and elevations of the present ground are believed to be reasonably correct, but do not purport to be absolutely so, and, together with any schedule of quantities, are presented only as an approximation. The Contractor shall satisfy their self, however, by actual examination on the site of the Work, as to the existing elevations and contours, and the amount of work required.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver products to the site, store and protect under provisions of Section 016600 - Product Handling and Protection.

B. Comply with all provisions of Section 013543 - Environmental Protection.

1.9 SEQUENCING AND SCHEDULING

A. Refer to 013319 for testing laboratory service scheduling.

1.10 PROHIBITION OF EXPLOSIVES

A. The use of explosives is not permitted.

1.11 FIELD MEASUREMENTS

PART 2 - PRODUCTS

2.1 GRANULAR PIPE EMBEDMENT

A. Crushed gravel or crushed limestone meeting AASHTO M 43 gradation shall be used for bedding, haunching, and initial backfill as shown on the Drawings.

2.2 SAND PIPE EMBEDMENT

A. Fine aggregate consisting of natural sand meeting the gradation requirements of ODOT Item 703.02.A.2 or shown on the Drawings. The material shall not be lumpy or frozen, and shall be free from slag, cinders, ashes, rubbish, and other deleterious or objectionable material. Sand shall not contain a total of more than 10% by weight of loam and clay.

2.3 ONSITE BACKFILL

A. Excavated soil material, capable of meeting specified compaction, and approved by the Engineer for use as backfill in designated locations.

B. Based upon subsurface investigation, the Owner does not guarantee the onsite soils in its present state consists of the proper moisture content to achieve the specified compaction without drying or adding water.

C. Unsuitable Backfill Material

1. Onsite materials that are unsuitable for backfill, unless otherwise specifically shown in the Drawings, include rock or other materials greater than six (6) inches in their largest dimension, pavement, rubbish, debris, wood, metal, plastic, frozen earth, and the following soils classified per ASTM D-2487:

Symbol	Description
OL	Organic silts and organic silty clays of low plasticity
MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
CH	Inorganic clays of high plasticity, fat clays
OH	Organic clays of medium to high plasticity
PT	Peat, muck, and other highly organic soils

2.4 SPECIAL BACKFILL MATERIAL (ODOT Item 304)

A. Special backfill material shall meet the gradation requirements of ODOT Item 304 and shall consist of crushed gravel or crushed limestone in combination with natural sand or stone. The aggregate shall meet the following gradation requirements:

Sieve	Total Percent Passing
2 inch	100
1 inch	70-100
¾ inch	50-90
No. 4	30-60
No. 30	9-33
No. 200	0-15

2.5 LOW STRENGTH MORTAR BACKFILL

A. Low Strength Mortar shall comply with ODOT Item 613.

B. Submit test data that demonstrates that the proposed mix has a strength of 50 to 100 PSI at 28 days.

C. Each load shall be tested with 3 cylinders for strength test broken at 3, 7, and 28 days until the Engineer is assured that the mix will be between 50 to 100 PSI at 28 days. Thereafter, one set of strength tests shall be taken every 50 CY.

It is intended that the sand be fine enough to stay in suspension in the mixture to the extent required for proper flow. The Engineer reserves the right to reject the sand if a flowable mixture cannot be produced.

D. Mortar Mix Proportioning

1. The initial trial mixture shall be as follows:

Quantity of Dry Materials per Cubic Yard

Cement	100 lbs.
Fly Ash	250 lbs.
Sand (SSD)*	2700 lbs.
Water	500 lbs.

* saturated-surface dry

2. These quantities of materials are expected to yield approximately l cubic yard of mortar of the proper consistency. Adjustments of the proportions may be made providing the total absolute volume of the materials is maintained.

2.6 ENGINEERED FILL

A. Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940. The aggregate shall meet the following gradation requirements:

Sieve	Total Percent Passing
2 inch	100
1½ inch	95-100
¾ inch	70-92
3/8 inch	50-70
No. 4	35-55
No. 30	12-25
No. 200	0-8

2.7 ACCESSORIES

A. Warning Tape
   1. Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:
      a. Red: Electric.
      b. Yellow: Gas, oil, steam, and dangerous materials.
      c. Orange: Telephone and other communications.
      d. Blue: Water systems.
      e. Green: Sewer systems.

B. Detectable Warning Tape
   1. Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
      a. Red: Electric.
      b. Yellow: Gas, oil, steam, and dangerous materials.
      c. Orange: Telephone and other communications.
      d. Blue: Water systems.
      e. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PROTECTION

A. Excavation; Temporary Sheeting, Shoring, and Bracing
   1. All excavation shall be in accordance with the Occupation Safety and Health Administration (OSHA) regulations.
   2. The Contractor shall furnish and install adequate sheeting, shoring, and bracing to maintain safe working conditions, and to protect newly built work and all adjacent neighboring structures from damage by settlement.
   3. Bracing shall be arranged so as not to place a strain on portions of completed work until construction has proceeded enough to provide ample strength. Sheeting and bracing may be withdrawn and removed at the time of backfilling, but the Contractor shall be responsible for all damage to newly built work and adjacent and neighboring structures.
   4. All sheeting shall be removed unless specifically authorized in writing by the Engineer to be left in place.

B. Construction Sheeting Left in Place
   1. The Contractor shall furnish, install, and leave in place construction sheeting and bracing when specified or when indicated or shown on the Drawings.

2. Any construction sheeting and bracing which the Contractor has placed to facilitate their work may be ordered in writing by the Engineer to be left in place. The right of the Engineer to order sheeting and bracing left in place shall not be construed as creating an obligation on their part to issue such orders. Failure of the Engineer to order sheeting and bracing left in place shall not relieve the Contractor of their responsibility under this Contract.

3.2 REPLACING, MOVING AND REPAIRING OF EXISTING UTILITIES

A. The Contractor shall:
1. replace, move, repair and maintain all utilities and all other structures encountered in the work
2. coordinate and communicate with applicable utility companies
3. repair all damage done to any of the said structures and appurtenances through their acts or neglect and shall keep them in repair during the life of this contract. The Contractor shall in all cases leave them in as good condition as they were previous to the commencement of the work and to the satisfaction of the Engineer.

3.3 DEWATERING

A. Drainage and Removal of Water
1. The Contractor shall dispose of water from the Work in a suitable manner without damage to adjacent property or structures.
2. The Contractor shall, when ordered by the Engineer, construct tight bulkheads across trench and provide pumps suitable for the removal of any water which may be encountered or which may accumulate in the trenches. Unless otherwise provided for in the Contract Documents, drainage water will not be permitted to flow through the conduit.
3. The trench shall be kept free from sewage and storm, surface, and subsurface water to at least 2 feet below the bottom of the excavation.
4. Where open water courses, ditches, or drain pipes are encountered during the progress of the Work, the Contractor shall provide protection and securing of the continuous flow in such courses or drains and shall repair any damage that may be done to them.

3.4 EXCAVATION CLASSIFICATION

A. All excavated materials are unclassified as defined in Article 1.3.

3.5 GENERAL EXCAVATION

A. All necessary excavation for buildings, structures, pavements, and site improvements shall be performed to accommodate the completion of all related Contract Work.

B. The Drawings show the horizontal and the lower limits of structures. The methods and equipment used by the Contractor when approaching the bottom limits of excavation shall be selected to provide a smooth surface and to prevent disturbing the soil below the bottom limits of excavation. All soil loosened during excavation shall be removed from the bottom of the excavation.

C. Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 feet, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.

D. Excavation which is carried below the bottom limits of structures shall be classified as Unauthorized Excavation, unless said excavation below bottom limits of structures has been authorized by the Engineer prior to each occurrence.

E. Unauthorized Excavation shall be filled with Class QC Misc concrete to the bottom limits of structures. Under circumstances where structural integrity is not a factor, the Engineer may authorize the filling of Unauthorized Excavation with Low Strength Mortar Backfill or Special Backfill material compacted to 100% density as specified under the compaction requirements in this Section. Such work shall be at the cost of the Contractor.

3.6 TRENCH EXCAVATION

A. Excavation for trenches in which pipelines, sewers, and conduits are to be installed shall provide adequate space for workmen to space and joint pipe properly, but in every case the trench shall be kept to a minimum width. The width of trench shall not exceed the limits shown on the Drawings.

B. Excavation shall be to the depth necessary for placing of granular bedding material under the pipe as shown on the Drawings. If over-excavation occurs, the trench bottom shall be filled to grade with compacted granular bedding material.

C. Trenching operations shall not be performed beyond the distance that will be backfilled and compacted the same day.

D. In general, backfilling shall begin as soon as the conduit is in approved condition to receive it and shall be carried to completion as rapidly as possible. New trenching shall not be started when earlier trenches need backfilling or the surfaces of streets or other areas need to be restored to a safe and proper condition.

3.7 EXCAVATION OF UNSUITABLE MATERIALS

A. Unsuitable materials existing below the Contract bottom limits for excavation shall be removed as directed by the Engineer. Such excavation shall not exceed the vertical and lateral limits as prescribed by the Engineer.

B. In utility trenches, the voids left by removal of unsuitable excavated material shall be filled with AASHTO M 43 No. 1 and No. 2 aggregate conforming to the material requirements of Article 2.1 of this Section.

C. In excavations other than utility trenches, the voids left by removal of unsuitable excavated material shall be filled with material consisting or either: (1) Special Backfill Material; (2) Class QC Misc concrete; or (3) Low Strength Mortar Backfill, whichever is ordered by the Engineer.

D. Removal of unsuitable excavated material and its replacement as directed will be paid on basis of Contract Conditions relative to Changes in Work unless specific unit prices have been established for excavation of unsuitable material.

3.8 DISPOSAL OF UNSUITABLE AND SURPLUS MATERIAL

A. It shall be the responsibility of the Contractor to dispose of all surplus material that cannot be used in backfill or embankments at their expense outside the limits of the project. Unsuitable excavated material, including rock or large boulders, shall be disposed of outside the limits of the project.

B. Surplus material may be wasted adjacent to or incorporated in the regular construction only when ordered in writing by the Engineer.

3.9 BACKFILL

A. Pipelines, Sewers and Conduits

1. All pipe shall have bedding extending the width of the trench with depth in conformance with the Drawings. The bedding material shall be thoroughly compacted by tamping until no further densification is possible.
2. Pipe cover material shall be used for filling above the pipe bedding along the sides of the pipe and to a height of twelve (12) inches over the top of the pipe. The pipe cover material shall be brought up evenly on both sides of the pipe to eliminate the possibility of lateral displacement of the pipe and shall be thoroughly compacted by tamping until no further densification is possible. Care shall be taken to spade the aggregate under the pipe haunch below the spring line.
3. All trenches and excavations shall be backfilled immediately after pipe is laid therein, unless otherwise directed by the Engineer.
4. After the pipe cover has been placed and compacted around the pipe as specified above, the remainder of the trench may be backfilled by machine. The backfill material shall be deposited in eight (8) inch horizontal layers, and each layer shall be thoroughly compacted to the specified density by approved methods before a succeeding layer is placed. In no case will backfilling material from a bucket be allowed to fall directly on a pipe and in all cases the bucket must be lowered so that the shock of the falling earth will not cause damage.
5. Puddling of sand bedding and pipe cover material is acceptable provided an acceptable method for removal of water is provided.

B. Structures

1. Backfilling shall not commence before concrete has attained specified strength. Do not use equipment for backfilling and compaction operations against structures that will overload the structure.
2. Backfilling around and over structures shall be carefully placed and tamped with tools of suitable weight to a point one (1) foot above the top of same. Additional backfill may be required to protect the structure from damage from heavy equipment. Backfill shall be placed in uniform layers not exceeding eight (8) inches in depth. Each layer shall be placed, then carefully and uniformly compacted to the specified density so as to eliminate the possibility of displacement of the structure.
3. After the backfill has been placed and compacted around the structure to the height specified above, the remainder may be backfilled by machine. The backfill material shall be deposited in eight (8) inch horizontal layers, and each layer shall be thoroughly compacted to the specified density by approved methods before a succeeding layer is placed. In no case will backfilling material from a bucket be allowed to fall directly on a structure, and in all cases the bucket must be lowered so that the shock of the falling earth will not cause damage.

C. Where any new, proposed, or future pavement, driveway, parking lot, curb, curb and gutter, or walk is to be placed over a backfilled area, Special Backfill material shall be used for any portion of the trench falling within the pavement prism.

D. Where it is necessary to undercut or replace existing utility conduits and/or service lines, the excavation beneath such lines shall be backfilled the entire length with approved Granular Pipe Embedment Material compacted in place in eight (8) inch layers to the required density. The approved Granular Pipe Embedment Material shall extend outward from the spring line of the conduit a distance of two (2) feet on either side and thence downward at its natural slope.

3.10 LOW STRENGTH MORTAR BACKFILL

A. Low strength mortar backfill shall be discharged from the mixer as recommended by the supplier and approved by the Engineer.

B. Low strength mortar backfill may be placed in the trench in as few lifts as may be practical.

D. Secure conduit or pipelines before placing low strength mortar backfill to prevent conduits and pipelines from floating during backfilling.

D. For low strength mortar backfill placed against existing structures of unknown strength, backfill material shall be brought up uniformly in maximum 12 inch lifts and allowed to cure for a minimum of 24 hours or until it can carry a person's weight without leaving imprints before the next lift is placed.

E. Low strength mortar backfill shall be brought up to subgrade elevation or the pavement prism, whichever may be applicable.

3.11 SUBGRADE

A. All soil subgrade shall be prepared in accordance with this subsection.

B. Drainage
   1. The surface of the subgrade shall be maintained in a smooth condition to prevent ponding of water after rains to insure the thorough drainage of the subgrade surface at all times.

C. Unsuitable Subgrade
   1. Where unsuitable subgrade or subgrade not meeting the required bearing capacity is encountered in cuts, due to no fault or neglect of the Contractor, in which satisfactory stability cannot be obtained by moisture control and compaction, the unstable material shall be excavated to the depth required by the Engineer.
   2. Suitable material required for the embankment to replace the undercut will be paid on basis of Contract Conditions relative to changes in Work.
   3. Where soft subgrade in cuts is due to the failure of the Contractor to maintain adequate surface drainage as required in this article, or is due to any other fault or neglect of the Contractor, the unstable condition shall be corrected as outlined above at no expense to the Owner.

D. Full Width New Pavement Construction
   1. After the surface of the subgrade has been shaped to approximate cross section grade, and before any pavement, base or subbase material is placed thereon, the subgrade shall be compacted. When the rolling is completed, all surface irregularities shall be corrected and the surface of the subgrade shall be shaped as necessary to conform to the grade and cross section shown on the Drawings within the tolerance set forth in this Section and shall be so maintained until the overlying course is in place.

3.12 TOLERANCES

A. The Contractor shall check the work under this item with templates, slope boards or other devices satisfactory to the Engineer. The completed work shall conform to the Drawings within the following tolerances:
   1. For subgrade, the surface shall at no place vary more than ½ inch from a ten-foot straight edge applied to the surface parallel to the centerline of the pavement, nor more than ½ inch from subgrade elevation established by construction layout stakes.

3.13 CONSTRUCTION WITH MOISTURE AND DENSITY CONTROL

A. All backfill shall be constructed using moisture and density control. All subgrade, except rock and shale in cut sections, shall be constructed using moisture and density control.

B. Backfill and subgrade material which does not contain sufficient moisture to be compacted in accordance with the requirements of Article 3.17 of this Section shall be sprinkled with water as directed by the Engineer to bring the moisture content to within the range of optimum plus or minus three (3) percent. Water shall be thoroughly incorporated into the material by means of discs or other approved equipment.

C. Backfill and subgrade material containing excess moisture shall be dried, prior to installation, to a moisture content not greater than three (3) percentage points above optimum, except that for material within the moisture content range specified herein that displays pronounced elasticity or deformation under the action of loaded construction equipment, the moisture content shall be reduced to optimum or below if necessary to secure stability. For subgrade material, these requirements for maximum moisture shall apply at the time of compaction of the subgrade and also at the time of placing pavement or subbase. Drying of wet soil shall be expedited by the use of plows, discs, or by other approved methods when so ordered by the Engineer.

3.14 COMPACTION REQUIREMENTS

A. The bottom of excavations upon which concrete foundations or structures are to be placed shall be compacted so as to obtain 100% of maximum dry density per ASTM D-698 in the top twelve (12) inches.

B. The top twelve (12) inches of stripped original subgrade and final subgrade shall be compacted to not less than 100% of maximum dry density per ASTM D-698.
   1. Subgrade under new, proposed, or future pavement shall be compacted 18 inches beyond the edge of pavement, paved shoulders or paved medians.

C. Compaction of subgrade for sidewalks (regardless of paving material) shall be 100% of maximum dry density per ASTM D-698 in the top six (6) inches.

D. Compaction of non-paved areas shall be 90% of maximum dry density per ASTM D-698.

E. Aggregate pipe embedment and aggregate backfill around structures shall be compacted to not less than 100% of maximum dry density per ASTM D-4253 and ASTM D-4254.

F. Final backfill shall be compacted to not less than 100% of maximum dry density per ASTM D-698.

G. Fill placed within the interior of structures shall be compacted to not less than 100% of maximum dry density per ASTM D-698.

H. Test Sections
   1. If it is determined by the Engineer that the composition of the material is such that it cannot be tested for density using a nuclear densometer or other methods; or where, in the opinion of the Engineer, in-place compaction

testing is not feasible; and if approved by the Engineer, the Contractor may construct a test section to demonstrate acceptable compactive effort in lieu of in-place compaction testing. Test sections shall be constructed at no additional cost to the Owner.

2. The test section shall be completed by repeatedly compacting the material until no further density is achieved. This value shall be the Minimum Test Section Density (MTSD). The compaction equipment used to complete the test section shall be of suitable size to compact the material and shall be the same equipment used to compact the in-place material.
3. The test section shall be constructed with moisture density control as specified in this Section.
4. The material shall be compacted to at least 98% of the MTSD.
5. Each lift of in-place fill or backfill shall be densified using a compactive effort equal to or greater than the effort applied to achieve the MTSD; i.e., if six passes were required to achieve MTSD, then each lift of material shall be compacted using six or more passes.
6. Construct a new test section when, in the opinion of the Engineer, the fill or backfill material has changed character or when the supporting material has changed character.

3.15 GRADING

A. Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
   1. Provide a smooth transition between adjacent existing grades and new grades.
   2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading
   1. Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
      a. Lawn or unpaved areas shall be graded to plus or minus 1 inch.
      b. Walks shall be graded to plus or minus 1 inch.

C. Grading inside Building Lines
   1. Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

END OF SECTION 310000

SECTION 321000 - PAVEMENT REPLACEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

A. The Contractor shall furnish all of the equipment, labor and materials necessary to install, replace, and/or restore existing pavement structures together with their respective appurtenances as shown on the plans and as specified herein. This work shall include all of the subgrade preparation, subbase, base, intermediate pavement course(s), and finish pavement courses together with curbing, guttering, tack and/or prime coating, sealing and other pertinent work as necessary to meet the conditions of this contract.

1.3 QUALITY ASSURANCE

A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

1.4 REPAIR OR REPLACEMENT WORK

A. For the repair and/or replacement of all existing pavement structures and their respective appurtenances that are removed and destroyed or otherwise damaged by the Contractor in the course of his performance of the work required under this contract, the Contractor shall furnish all equipment, labor, and materials as necessary to properly restore to a condition equal to that at his entry, and to the satisfaction of the Engineer, the Ohio Department of Transportation, the County Engineer, City Engineer, all cinder, slag, gravel, water-bound macadam, bituminous macadam, asphalt and brick or concrete driveways, curbs, sidewalks and roadways in strict accordance with the drawings and as specified herein.

B. In general, this item will include concrete, steel reinforcement, brick, stone, slag, cinders, gravel, asphalt and other bituminous materials and curbs, gutters, driveway culverts, road and curb drains and the demolition, excavation and removal of existing driveways, sidewalks and roadways.

1.5 REFERENCE TO OTHER PARTS

A. Other sections of these specifications shall apply, as and where applicable to this section and such sections will be the same as though they were included in this section.

B. For all old work where pavement is being repaired and/or replaced as a result of damages occurring thereto during the course of the work of this contract, all clearing and grubbing, removal and storage of topsoil, excavation and/or placing of compacted fill and granular backfill, shall be done as required under other parts of these specifications.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Generally, for all repair and replacement work, all new materials shall match the existing and adjoining work in both composition and quality unless otherwise ordered, specified herein, and/or shown on the drawings. In any stone driveway or roadway, the material used for stone fill shall conform to the existing material.

PART 3 - EXECUTION

3.1 CONSTRUCTION

A. All pavement work shall be done in strict accordance with the specifications of the governmental body concerned and the latest ODOT specifications as applicable or at the direction of the Engineer.

B. All pavements disturbed by the Contractor's operations shall be relaid to the thickness of the adjoining pavement and, in all cases, the restoring of pavements, shall apply both to foundation courses and to the wearing surface.

C. Should cracks or settlements appear in adjoining pavements, the paving shall be removed to the extent necessary to secure firm and undisturbed bearing and shall be replaced in a satisfactory manner.

D. No permanent pavement shall be installed, repaired, and/or restored unless, or until, in the opinion of the Engineer, the condition of the backfill is such as to properly support the pavement.

E. Where new or replacement concrete pavement or base is placed adjacent to existing concrete pavement or base, contraction joints shall be provided in the new or replacement pavement so as to form a continuous joint with that in the existing pavement.

3.2 ROADWAY SUBGRADE

A. The entire area to be occupied by the roadways and parking areas shall be cleared, topsoil removed and stored, and the excavation or compacted fill made as required and brought to the proper cross-sections. Pipe trenches and other excavations shall be backfilled as required, and thoroughly compacted within the limits of the roadways or parking areas.

B. After the surface of the subgrade has been properly shaped and before any stone or slag is placed, the entire subgrade shall be thoroughly rolled and compacted to a depth of 12 inches under this section. Rolling shall be done with an approved type of self-propelled roller, weighing not less than ten (10) tons. All hollows and depressions which develop during the rolling shall be filled with acceptable materials, and the subgrade rerolled. The process of filling and rolling shall be repeated until no depressions develop, and the entire subgrade has been brought to a uniform condition of stability.

C. All places which, in the opinion of the Engineer cannot be properly rolled, shall be tamped with handheld mechanically or pneumatically powered tampers.

D. In making the compacted fill and in doing the final subgrade rolling, the Contractor shall see that the material to be compacted and/or rolled has the proper moisture content to secure maximum compaction. When, in the opinion of the Engineer, the material is too wet, the compacting shall be delayed until the material has dried sufficiently. When, in the opinion of the Engineer, the material is too dry, the material shall be sprinkled with water in an amount to secure the proper moisture content.

3.3 TRAFFIC PAINT

A. It shall be the responsibility of the Contractor to replace all existing pavement markings in the style and at the locations that existed prior to this work. The Contractor shall make records of these markings as they exist and will supply these records to the Engineer prior to the start of any work. In the absence of such documentation, the Owner's discretion shall prevail. Unless specifically paid for in other items, the cost of pavement marking replacement shall be included in the Contractor's bid price of pavement.

END OF SECTION 321000

SECTION 321613.13 - CONCRETE CURBS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

A. Under this section the Contractor shall furnish and construct curbing of various, designated types as shown or scheduled on the Drawings.

B. This section includes preparation of the base and/or subgrade construction of curbs, other work and materials incidental to the construction of curbing.

1.3 OWNER'S STANDARDS AND SPECIFICATIONS

A. Items preceded by ODOT shall refer to the latest edition of the State of Ohio, Department of Transportation, Construction and Material Specifications.

PART 2 - PRODUCTS

2.1 CONCRETE

A. All concrete used shall be Class QC-MS as specified in Section 030000.

2.2 CURBING

A. Other materials for curbing shall meet the applicable requirements of ODOT Item 609.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All soil subgrade under curbs shall be compacted in accordance with Section 310000.

B. All construction for curbing shall be in accordance with ODOT Item 609 for the type called for on the Drawings.

END OF SECTION 321613.13

SECTION 321623 - CONCRETE WALKS AND STAIRS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

A. Under this section the Contractor shall furnish and construct sidewalks and stairs as shown or scheduled on the Drawings, specified or directed.

B. This section includes preparation of the base and/or subgrade construction of walks, adjustment of manhole castings and valve boxes to conform to new elevations and other work and materials incidental to the construction of walks and stairs.

1.3 OWNER'S STANDARDS AND SPECIFICATIONS

A. Items preceded by ODOT shall refer to the latest edition of the State of Ohio, Department of Transportation, Construction and Material Specifications.

PART 2 - PRODUCTS

2.1 CONCRETE

A. All concrete used shall be Class QC 1 as specified in section 030000.

2.2 WALKS AND STAIRS

A. Other materials for walks and stairs shall meet the applicable requirements of ODOT Item 608.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All soil subgrade under walks and stairs shall be compacted in accordance with Section 310000.

B. All service boxes, manholes and inlet tops shall be set to the required grades.

C. All construction for walks and stairs shall be in accordance with ODOT Item 608 for the type called for on the Drawings.

D. Minimum thickness of concrete walks shall be 4 inches. If the existing thickness is greater than 4 inches, the Contractor shall replace to the existing thickness.

END OF SECTION 321623

SECTION 329200.19 – SEEDING AND MULCHING

PART 1 - GENERAL

1.1 SUMMARY

A. Installation of seeded areas shall be to the extent shown on Contract Drawings and shall include supplying all seed, topsoil, soil conditioning materials, mulching materials and watering, and the incorporation of these materials into the work as specified.

B. The Contractor shall place topsoil at the depths specified in those areas requiring seeding. Topsoil shall be furnished by the Contractor.

1.2 SUBMITTALS

A. Product Data: For the following:
   1. Provide copies of soils tests for both new topsoil (provided) and onsite topsoil for review and approval. This applies to all areas that require seeding, including reconditioned areas.
   2. Provide location of properties from which topsoil is to be obtained, names and addresses of owners, depth to be stripped, and crops grown in the past 2 years.
   3. Provide the name of the seed supplier, name and phone number, list of the seed, including varieties of seed, labels, and an analysis of the seed for review, 4 weeks prior to the start of seeding.
   4. Provide soil amendments information based on soils test requirements.
   5. Hydroseed mixture, mulch and application rates prior to performing the work.

1.3 QUALITY ASSURANCE

A. Any subcontracted restoration work shall be performed by a qualified firm specializing in landscape work.

B. The Contractor shall have a soils test done at their expense and analyzed by a state approved testing agency. Soil tests shall be done on both the topsoil stockpiled from the site and new topsoil brought to the site. A minimum of two (2) tests shall be done. The tests shall include percent organic matter, pH, Buffer pH, Phosphorus, Exchangeable Potassium, Calcium, Magnesium, Cation Exchange Capacity and Percent Base Saturation with recommendations for nitrogen, phosphate, potash, magnesium and lime based on plant type and use.

C. Seed: All seed specified shall meet O.D.O.T. specifications as to the percentage purity, weed seed, and germination. All seed shall be approved by the State of Ohio, Department of Agriculture, Division of Plant Industry, and shall meet the requirements of these specifications.

D. Packaged Materials: Deliver packaged materials in containers showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.

1.4 PROJECT CONDITIONS

A. Utilities: Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.

B. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, such conditions shall be rectified by the Contractor before planting, with approval from the Owner's Representative.

C. Soil Stabilization: The Contractor shall provide permanent or temporary soil stabilization to denuded areas within fifteen (15) days after final grade is reached on any portion of the site. Any such area which will not be regraded for longer than fifteen (15) days shall also be stabilized. Soil stabilization includes any measures which protect the soil from the erosive forces of raindrop impact and flowing water. Applications include seeding and/or mulching, or the use of other erosion control measures as directed by the Owner's Representative. If necessary, the Contractor shall coordinate soil stabilization practices with the local Soil and Water Conservation District.

D. Spring-sown work shall be installed between April 1st and May 30th and Fall-sown work shall be installed between September 1st and October 15th. No permanent seeding shall take place between May 30th and September 1st and between October 15th and April 1st. The dates for seeding may be changed at the discretion of the Owner's Representative.

PART 2 - PRODUCTS

2.1 TOPSOIL

A. Topsoil shall be furnished by the Contractor. Stockpiled material, if any, shall be utilized prior to obtaining additional topsoil.

B. All topsoil shall conform to the U.S. Department of Agriculture soil texturing triangle and shall contain between 3% to 8% organic matter. Topsoil shall be loamy and not consist of more than 38% clay. New topsoil shall be screened to remove clay lumps, brush, weeds, litter, roots, stumps, stones larger than ½" in any dimension and any other extraneous or toxic matter harmful to plant growth. New topsoil shall be obtained only from naturally well drained sites where topsoil occurs in a depth of not less than 4". Do not obtain from bogs or marshes.

C. Soil amendments shall be added according to the soils test requirements. Amendments can include, but are not limited to fertilizer, lime, compost, sand, and organic matter. Organic matter shall consist of composted leaves or other approved material.

2.2 SEED

A. Seed shall be vendor mixed, delivered in original bags and shall be proportioned as follows:

Common Name	Proportion by Weight
Kentucky Blue Grass	50%
Perennial Rye	50%

2.3 MULCH

A. Mulch shall be clean straw free of seed and weed seed.
   1. Anchoring for mulch shall be an ODOT specified SS-1 at 60 gal./ton non-toxic tackifier such as Hydro-stik, or equal, or by securing with a photo degradable netting.

B. If hydroseeding is used, wood fiber mulching material shall be used and shall consist of virgin wood fibers manufactured expressly from whole wood chips and shall conform to the following specifications.

- Moisture content	10.0% ± 3.0%
- Organic content	99.2% ± 0.8% O.D. Basis
- pH	4.8 ± 0.5
- Water holding capacity, minimum (grams of water per 100 grams of fiber)	1,000

Wood fiber mulching material shall be processed in such a manner as to contain no growth or germination inhibiting factors, and must contain a biodegradable green dye to aid in visual metering during application.

PART 3 - EXECUTION

3.1 PREPARATION - GENERAL

A. Rough grading to a depth necessary to accept the specified thickness of topsoil must be approved prior to placing topsoil.

B. Loosen subgrade, remove any stones greater than ½” in any dimension. Remove sticks, roots, rubbish, and other extraneous matter.

C. Spread topsoil to a minimum depth of 4 inches, to meet lines, grades, and elevations shown on plan, after light rolling and natural settlement. Remove sticks, roots, rubbish, stones greater than 1/2" in any dimension, and other extraneous matter. Topsoil shall be tilled thoroughly by plowing, disking, harrowing, or other approved methods. Add specified soil amendments and mix thoroughly into the topsoil.

D. Preparation of Unchanged Grades: Where seed is to be planted in areas that have not been altered or disturbed by excavating, grading, or stripping operations, prepare soil for planting as follows: Till to a depth of not less than 6 inches. Apply soil amendments and initial fertilizers as specified. Remove high areas and fill in depressions. Till soil to a homogenous mixture of fine texture, free of lumps, clods, stones, roots and other extraneous matter. Soils test requirements apply here as well.

1. Prior to preparation of unchanged areas, remove existing grass, vegetation and turf. Dispose of such material outside of project limits. Do not turn existing vegetation over into soil being prepared for seed. If necessary, supply and install topsoil in areas where there is no topsoil left after vegetation has been removed.
2. Apply specified soil amendments at rates specified in the soils test and thoroughly mix into upper 2 inches of topsoil. Add topsoil if existing grade has less than 4" of topsoil. Delay application of amendments if planting will not follow within two (2) days.

E. Fine grade areas to smooth, even surface with loose, uniformly fine texture. Roll, rake, and drag lawn areas, remove ridges and fill depressions, as required to meet finish grades. Remove sticks, roots, rubbish, stones greater than 1/2" in any dimension, and other extraneous matter. Limit fine grading to areas which can be planted immediately after grading.

F. Moisten prepared areas before planting if soil is dry. Water thoroughly and allow surface moisture to dry before planting lawns. Do not create a muddy soil condition.

G. Restore areas to specified condition, if eroded or otherwise disturbed, after fine grading and prior to planting.

3.2 SEEDING

A. Do not use wet seed or seed that is moldy or otherwise damaged in transit or storage. Seed shall not be sown when the ground is frozen, muddy, or when weather conditions prevent proper soil preparation, interference with sowing and/or proper incorporation of seed into the soil.

B. Sow seed using a spreader or hydroseeder. Do not seed when wind velocity exceeds 5 miles per hour. Distribute seed evenly over entire area by sowing 3 lbs. per 1000 S.F. at right angles to each other. Total amount to equal a minimum of 6 lbs. per 1000 S.F.

C. For seed sown with a spreader, mulch shall be spread uniformly to form a continuous blanket at a rate of 100 lbs. per 1,000 S.F. Mulch shall be 1 1/2" loose measurement over seeded areas and shall be anchored.

D. Contractor has the option to hydroseed large lawn areas, using equipment specifically designed for such application. The rate of application of wood fiber mulching materials is 40 lbs./1,000 S.F. Contractor shall not hydroseed within close proximity to buildings and structures, or when unfavorable wind conditions may blow the hydroseed material onto the structure. Contractor shall clean all areas not to be seeded of overspray.

E. The seeded area shall be watered, as soon as the seed is applied, at the rate of 120 gallons per 1000 square feet. The water shall be applied by means of a hydroseeder or a water tank under pressure with a nozzle that will produce a spray that will not dislodge the mulching material. Cost of this watering shall be included in the cost of seeding and mulching.

3.3 DORMANT SEEDING METHOD

A. Seeding shall not take place from October 15 through November 20. During this period prepare the seed bed, add the required amounts of lime and fertilizer, and other amendments, then mulch and anchor.

B. From November 20 through April 1, when soil conditions permit, prepare the seed bed, lime and fertilize, apply the selected seed mixture, mulch, and anchor. Increase the seeding rate by 50 percent.

3.4 RECONDITIONING EXISTING LAWNS

A. A soils test shall be required for existing lawns prior to any reconditioning.

B. Recondition all existing lawn areas damaged by Contractor's operations including storage of materials and equipment and movement of vehicles. Also recondition existing lawn areas where minor regrading is required.

C. Provide soil amendments as called for in the soils test.

D. Provide new topsoil, as required, to fill low spots and meet new finish grades.

E. Cultivate bare and compacted areas according to the topsoil specifications.

F. Remove diseased and unsatisfactory lawn areas; do not bury into soil. Remove topsoil containing foreign materials resulting from the Contractor's operations, including oil drippings, stone, gravel, and other loose building materials.

G. All work shall be the same as for new seeding.

H. Water newly planted seed areas. Maintenance of reconditioned lawns shall be the same as maintenance of new lawns.

3.5 ESTABLISHMENT

A. Maintain work areas as long as necessary to establish a uniformly close stand of grass over the entire lawn area. A uniformly close stand of grass is defined as the seeded areas having 90%+ coverage of grass at 60 days after seeding. 90%+ coverage is defined as very little or no dirt showing when seeded area is viewed from directly overhead.

B. Maintain lawns by watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, regrading and replanting as required to establish a smooth acceptable lawn.
   1. Mowing
      a. Mow lawn areas during the period of maintenance to a height of 2 inches

whenever the height of the grass becomes 3 inches. A minimum of 3 mowings is required during the period of maintenance.

2. Refertilizing
   a. Distribute fertilizer on the seeded area between August 15 and October 15, during the period when grass is dry, and in accordance with the manufacturer's recommendations. The fertilizer shall be as specified in the soils test.
3. Reseeding
   a. Reseed with the seed specified for the original seeding, at the rate of 4 lbs. per 1,000 S.F. in a manner which will cause minimum disturbance to the existing stand of grass and at an angle of not less than 15 degrees from the direction of rows of prior seeding.
4. Watering
   a. The Contractor shall keep all work areas watered daily to achieve satisfactory growth. Water shall be applied at a rate of 120 gallons per 1,000 square feet. If water is listed as a pay item, it shall be separately paid for based on the actual amount of water used, measured in thousands of gallons.
5. Any mulching which has been displaced shall be repaired immediately. Any seed work which has been disturbed or damaged from the displacement of mulch shall be repaired prior to remulching.

3.6 INSPECTION AND ACCEPTANCE

A. When seeding work is complete and an acceptable stand of growth is attained, the Contractor shall request the Owner's Representative to make an inspection to determine final acceptance.

B. Acceptance shall be based upon achieving a vigorous uniformly stand of the specified grasses. If some areas are satisfactory and some are not, acceptance may be made in blocks, provided they are definable or bounded by readily identified permanent surfaces, structures, or other reference means. Partial acceptance decisions may be made by the Owner's Representative. Excessive fragmentation into accepted and unaccepted areas shall not be allowed. Unaccepted areas shall be maintained by the Contractor until acceptable.

C. No payment shall be made until areas are accepted.

D. All seeded areas shall be guaranteed for one full growing season to commence upon final acceptance of the areas.

END OF SECTION 329200.19

SECTION 330130.01- SEWER COLLECTION SYSTEM REHABILITATION DEFINITIONS

PART 1 - GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division-1 Specifications, apply to work of this section.

1.2 DESCRIPTION OF WORK

A. The work covered by this project shall include the furnishing of all labor, equipment, materials, and supervision; and performing all work necessary to investigate, rehabilitate, and/or replace the designated sewer lines, manholes, etc., all in accordance with the specifications. The work shall consist of, but not necessarily be limited to, performing the following work tasks where specified:
   1. Sewer Line Cleaning
   2. Sewer Flow Control
   3. Television Inspection
   4. Sewer Pipe Joint Testing
   5. Sewer Pipe Joint Sealing
   6. Sewer Manhole Rehabilitation
   7. Sewer Mainline Rehabilitation

B. The area of work and the type of repair/rehabilitation to be performed shall be at those locations shown on the tables or drawings in the Specific Project Requirements section of these specifications.

1.3 DEFINITIONS

A. Wherever used in these specifications, the following words and terms shall have the meanings indicated:

   1. AREAWAY: A paved surface, serving as an entry area to a basement or subsurface portion of a building, which is provided with some form of drainage device that may be connected to a sewer line.

   2. AVAILABLE WATER: Water necessary for the performance of work, which may be taken only from fire hydrant(s) approved by the Owner, given conditions of traffic and terrain which are compatible with the use of the hydrant for performance of work.

   3. BUILDING SEWER: The conduit which connects building wastewater sources to the public or street sewer (referred to also as "house sewer," "building connection," "lateral," or "service connection"), including lines serving homes, public buildings, commercial establishments, and industry structures. In this specification, the building sewer is referred to in two sections:

a. The section between the building and the property line, right-of-way line, or to a point specified and supervised by the Owner's designated representative.

b. The remaining section to the collector sewer, including the connection thereto.

4. BYPASS: An arrangement of pipes, conduits, gates, and valves whereby the flow may be passed around a hydraulic structure or appurtenance. Also, a temporary setup to route flow around a specified part of a sewer system.

5. BYPASS PUMPING: The transportation of sewage flows around a specific sewer pipe line section or sections via any conduit for the purpose of controlling sewage flows in the specified section or sections without flowing or spilling onto public or private property.

6. CELLAR DRAIN: A pipe or series of pipes which collect wastewater which leak, seep, or flow into subgrade parts of structures and discharge them into a building sewer, or by other means dispose of such wastewater into sanitary, combined or storm sewers.

   a. Referred to also as a "basement drain."

7. CHANGE ORDER: A written order to the Contractor authorizing an addition, deletion, or revision in the work within the general scope of work of the agreement, or authorizing an adjustment in the agreement price or agreement time.

8. COLLECTOR SEWER: A sewer located in the public way which collects the wastewater discharged through building sewers and conducts such flows into larger interceptor sewers and pumping and treatment works.

   a. Referred to also as "street sewer."

9. COMBINED SEWER: A sewer intended to serve as both a sanitary sewer and a storm sewer, or as both an industrial sewer and a storm sewer.

10. COMPRESSION GASKET: A device which can be made of several materials in a variety of cross sections and which serves to secure a tight seal between two pipe sections (e.g., "O"-rings).

11. CORBEL OR CONE: That portion of a manhole structure which slopes upward and inward from the barrel of the manhole to the manhole cover frame.

12. CREW: The number of persons required for the performance of work at a site as determined by the Contractor in response to task difficulty and safety considerations at the time or location of the work

13. DEBRIS: Soil, rocks, sand, grease, roots, etc., in a sewer line excluding items mechanically attached to the line such as protruding service connections, protruding pipe, joint materials, and the like.

14. EASEMENT: A liberty, privilege, or advantage without profit which the owner of one parcel of land may have in the land of another. In this agreement, all land, other

than public streets, in which the Owner has sewer system lines or installations and right of access to such lines or installations.

15. EASEMENT ACCESS: Areas within an easement to which access is required for performance of work.

16. ENGINEER: The engineer (a person, joint venture, firm, or corporation) who works for or under a contract or subagreement with the Owner and is designated by the Owner as the Engineer of Record under the prime contract.

17. EXFILTRATION: The leakage or discharge of flows being carried by sewers out into the ground through leaks in pipes, joints, manholes, or other sewer system structures; the reverse of "infiltration".

18. EXISTING LINEAR FEET: The total length of existing sewer pipe in place within designated sewer systems as measured from center of manhole to center of manhole from maps or in the field.

19. FLOW CONTROL: A method whereby normal sewer flows or a portion of normal sewer flows are blocked, retarded, or diverted (bypassed) within certain areas of the sewer collection system.

20. FOUNDATION DRAIN: A pipe or series of pipes which collect groundwater from the foundation or footer of structures and discharge it into sanitary, storm, or combined sewers, or to other points of disposal for the purpose of draining unwanted waters away from such structures.

21. GROUTING: The joining together of loose particles of soil in such a manner that the soil so grouped becomes a solid mass which is impervious to water (see also SEWER PIPE JOINT SEALING).

22. HYDRAULIC CLEANING: Techniques and methods used to clean sewer lines with water, e.g.; water pumped in the form of a high-velocity spray and water flowing by gravity or head pressure. Devices include high-velocity jet cleaners, collapsible dams, etc.

23. INFILTRATION: The water entering a sewer system, including building sewers, from the ground, through such means as, but not limited to, defective pipes, pipe joints, connections, or manhole walls. Infiltration does not include, and is distinguished from, inflow.

24. INFILTRATION/INFLOW (I/I): A combination of infiltration and inflow wastewater volumes in sewer lines, with no way to distinguish either of the basic sources, and with the same effect of usurping the capacities of sewer systems and other sewer system facilities.

25. INFLOW: The water discharged into a sewer system, including service connections, from such sources as, but not limited to, roof leaders; cellar, yard, and area drains; foundation drains; cooling water discharges; drains from springs and swampy areas; manhole covers; cross connections from storm sewers, combined sewers, catch

basins; storm waters; surface runoff; street wash water; or drainage. Inflow does not include, and is distinguished from, infiltration.

26. INSPECTOR: The Owner's on-site representative responsible for observation and recording of quantities of work performed as set forth in these specifications.

27. INTERCEPTOR SEWER: A sewer which receives the flow from collector sewers and conveys the wastewater to treatment facilities.

28. INTERNAL PIPE INSPECTION: The television inspection of a preselected sewer line section. A television camera is moved through the line at a slow, uniform rate and a continuous picture is transmitted to an aboveground monitor.

29. INVERT: The floor, bottom or lowest point of a conduit.

30. INVERT LEVEL (ELEVATION): The level (elevation) of the lowest portion of a liquid - carrying conduit, such as a sewer, which determines in part the hydraulic gradient available for moving the contained liquid

31. JOINTS: The means of connecting sectional lengths of sewer pipe into a continuous sewer line using various types of jointing materials. The number of joints depends on the lengths of the pipe sections used in the specific sewer construction work.

32. LINEAR FOOT: Being one foot as measured along the centerline of a sewer line.

33. LONG-TERM MODULUS OF ELASTICITY: The modulus of elasticity of the material after 50 years of service. This value may be extrapolated from a 10,000 hour test of the material.

34. MAJOR BLOCKAGE: A structural defect, collapse, or blockage which prohibits manhole-to-manhole cleaning with commercially available hydraulic or mechanical cleaning equipment.

35. MANHOLE SECTION: The length of sewer pipe connecting two manholes.

36. MECHANICAL CLEANING: Techniques and methods used to clean sewer lines of debris mechanically with devices such as power rodding machines, winch-pulled brushes, bucket machines, etc.

37. OVERFLOW:

    a. The excess water that overflows the ordinary limits such as the stream banks, the spillway crest, or the ordinary level of a container.

    b. To cover or inundate with water or other fluid.

38. PHYSICAL PIPE INSPECTION: The crawling or walking through manually accessible pipe lines. The logs for this inspection technique record the information of the kind detailed under Internal Pipe Inspection. This inspection technique is only undertaken when field conditions offer minimal hazard or jeopardy to personnel.

39. PIPE JOINT SEALING: A method of correcting leaking or defective pipe joints which permit infiltration of extraneous water into the sewers by means of applying chemical materials into and/or through the joint area from within the pipe.

40. REGULATOR: A device or apparatus for controlling the quantity of admixtures of sewage and storm water admitted from a combined sewer collector line into an interceptor sewer, or pumping or treatment facilities, thereby determining the amount and quality of the flows discharged through an overflow device to receiving waters or other points of disposal.

41. ROOF LEADER: A drain or pipe that conducts storm water from the roof of a structure downward and thence into a sewer for removal from the property, or onto the ground for runoff or seepage disposal.

42. SANITARY SEWER: A sewer intended to carry only sanitary or sanitary and industrial wastewater from residences, commercial buildings, industrial parks, and institutions.

43. SERVICE CONNECTION: see Building Sewer.

44. SEWER CLEANING: The utilization of hydraulic or mechanical techniques and/or devices to dislodge, transport, and remove debris from sewer lines.

45. SEWER PIPE: A length of conduit, manufactured from various materials and in various lengths, that when joined together can be used to transport wastewater from point of origin to a treatment works. Materials include, but are not limited to: Acrylonitrile-butadiene-styrene (ABS): Asbestos-Cement (AC): Brick Pipe (BP); Concrete Pipe (CP); Cast Iron Pipe (CIP); Ductile Iron Pipe (DIP); Polyethylene (PE); Polyvinylchloride (PVC); Reinforced Concrete Pipe (RCP); Reinforced Plastic Mortar (RPM): Steel Pipe (SP); Vitrified Clay Pipe (VCP).

46. SITE: Any location where work has been or will be done.

47. SITE ACCESS: An adequately clear area of a size sufficient to accommodate personnel and equipment required at the location where work is to be performed, including roadway or surface sufficiently unobstructed to permit conveyance of vehicles from the nearest paved roadway to the work location.

48. SPRING LINE: The horizontal midpoint of a sewer pipe.

49. STORM SEWER: A sewer intended to carry only storm waters, surface runoffs, street wash water, and drainage.

50. STREET ACCESS: Areas normally used for public vehicular traffic (including roads, streets, or areas within existing rights-of-way or easements) to which safe access is required for performance of work.

51. SUBCONTRACTOR: An individual, firm, or corporation having a direct contract with the Contractor for performance of part of the work.

52. SURCHARGE: When the sewer flow exceeds the hydraulic carrying capacity of the sewer line.

53. SURCHARGE CONDITION: When the sewer flow depth equals or exceeds the diameter of the discharging sewer line or lines.

54. SWALE (DIP, SAG): A significant deviation in pipe grade such as to cause entrapment of solids, semisolids, and liquids, thereby impeding the accuracy and/or effectiveness of flow measurements, cleaning, and internal inspection.

END OF SECTION 330130.01

SECTION 330130.03 - SEWER FLOW CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division-1 Specifications, apply to work of this Section.

B. Other Sections Referenced:
   1. Section 330130.01 - Sewer Collection System Rehabilitation Definitions

1.2 DESCRIPTION OF WORK

A. The intent of this work is to control the flow in the sewer to enable the successful inspection, rehabilitation or replacement of the pipe.

B. Depth of flow shall not exceed that shown below for the respective pipe sizes when performing television inspection, joint testing and/or sealing.

	Pipe Diameter	Maximum Depth of Flow
1.	6" - 10" Pipe	- 25% of pipe diameter
2.	12" - 24" Pipe	- 33% of pipe diameter
3.	27" & up Pipe	- 40% of pipe diameter

C. Flow shall be controlled or bypassed from sewer sections where sewer improvements are specified and work requires no flow to be present during the preparation and/or installation of such improvements. The methods used shall be in accordance with the work being performed.

1.3 QUALITY ASSURANCE

A. When flow in a sewer line is plugged, blocked, or bypassed; sufficient precautions must be taken to protect the sewer lines from damage that might result from sewer surcharging. Further, precautions must be taken to insure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers involved.

1.4 SUBMITTALS

A. The Contractor shall submit a written request for Sewer Flow Control, specify the method and equipment to be used, and receive approval from the Owner and the Engineer prior to performing the work.

B. For bypass pumping, submit shop drawings in accordance with the General Requirements showing pumps, piping layout plan and dimensions, schedule of pipe fittings and specials, materials and class for each size and type of pipe, joint details, and any special provisions required for assembly. Provide a wet weather operation plan which describes what procedures will be followed when flow exceeds pumping capacity.

PART 2 - PRODUCTS

2.1 EQUIPMENT

A. Sewer plugs shall be so designed that all or any portion of the sewage can be quickly released.

B. Pumps bypass pipe, fittings, and joining methods shall be suitable and of a type normally used for raw sanitary sewage.
   1. Pumps bypass pipe, fittings, and joining methods shall be suitable and of a type normally used for raw sanitary sewage.
   2. The bypass system shall be of sufficient capacity to handle existing peak dry weather flow plus additional flow that may occur during a rainstorm unless otherwise provided for by an approved wet weather operation plan.
   3. If pumping is required on a 24-hour basis, engines shall be equipped in a manner to keep noise to a minimum.
   4. Bypass piping to be furnished and installed shall include, but not limited to all pipe, fittings, specials, bends, beveled pipe, adapters, bulkheads, stoppers, plugs, joint restraints, joints and jointing materials, and pipe supports. Bypass piping shall be rated to twice the system operating pressure.

C. Hydrocleaning equipment shall be equipped with high-velocity nozzles capable of pulling flow away from the pipe section being televised. The equipment shall carry its own water tank, auxiliary engines, pumps and hydraulically driven hose reel.

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

A. The Contractor shall continuously supervise the level of water in the upstream and downstream sewers to ensure that harmful surcharging does not occur. The Contractor shall be responsible for any damage to the system and/or to public or private property resulting from improper execution of flow control measures.

3.2 PLUGGING OR BLOCKING

A. A sewer line plug or flow control system shall be installed into the line upstream of the section being worked. During TV inspection, testing and sewer improvement operations, flow shall be reduced to to ensure all work can be performed and improvements can be installed as specified. After the work has been completed, flow shall be restored to normal.

3.3 PUMPING AND BYPASSING

A. When pumping and bypassing is required, the Contractor shall supply and install the pumps, conduits, and other equipment to divert the flow around the section in which work is to be performed. Under no circumstances will the discharge of raw sewage to other than sanitary sewers be allowed.

B. The Contractor shall be responsible for furnishing the necessary labor and supervision to set up and operate the pumping and bypassing system.

C. The proposed bypassing system shall be set up to allow traffic flow to local residents and businesses.

D. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

E. Make connections to all existing force mains being bypassed.

F. Install temporary bypass piping with restrained joints at horizontal and vertical changes in direction.

G. Provide granular material for bedding and encasement of temporary piping when buried below pavement.

H. Field test bypass piping and obtain approval from the Engineer prior to placing bypass system in service.

I. Installation of bypass pumping facilities and the subsequent operation shall not commence until the Contractor has all materials and equipment available to perform the necessary sewer related improvements.

J. Do not remove pumping and bypass system until it is no longer needed and can be replaced by authorized use of completed permanent facilities.

END OF SECTION 330130.03

SECTION 330130.17 - TELEVISION INSPECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division-1 Specifications, apply to work of this section.

B. Other Sections Referenced:
   1. Section 330130.01 – Sewer Collection System Rehabilitation Definitions
   2. Section 330130.02 – Sewer Line Cleaning
   3. Section 330130.03 – Sewer Flow Control

1.2 DESCRIPTION OF WORK

A. After cleaning or when otherwise specified, the manhole sections shall be visually inspected by means of closed-circuit television. The inspection will be done one manhole section at a time and the flow in the section being inspected will be suitably controlled.

1.3 DEFINITIONS

A. Wherever used in these specifications, the following words and terms shall have the meanings indicated:
   1. CCTV: Closed Circuit Television
   2. NASSCO: National Association of Sewer Services Companies
   3. PACP: Pipeline Assessment Certification Program

1.4 QUALITY ASSURANCE

A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

B. All CCTV and reporting shall be performed in accordance with NASSCO PACP recording, coding, and grading. Operator and coder shall be certified to perform work by NASSCO.

1.5 SUBMITTALS

A. Equipment Data: Submit equipment manufacturer's technical data and operation instructions for the televising and recording equipment to be used.

B. Product Data: Submit brand name and specifications of video tape to be used for the recording of the televising data.

C. Report: Submit sample televising log report for review and approval of content and format.

PART 2 - PRODUCTS

2.1 GENERAL

A. The camera, television monitor, and other components of the video system shall be capable of producing picture quality to the satisfaction of the Owner's Representative, and if unsatisfactory, equipment shall be removed and no payment will be made for an unsatisfactory inspection.

2.2 MATERIAL

A. Video recording shall be submitted on USB thumb drive. Two (2) copies shall be sent to the Engineer for review.

2.3 EQUIPMENT

A. The television camera used for the inspection shall be one specifically designed and constructed for such closed-circuit sewer pipe inspection. Lighting for the camera shall be suitable to allow a clear picture of the entire periphery of the pipe. The camera shall be operative in 100% humidity conditions. The camera shall televise and transmit the image in color and shall have pan and tilt capabilities.

B. The propulsion system shall be either a tractor, skid and winch arrangement, or with special approval from the Owner, a float.

C. The recording system shall be digital with capability for annotating and narrating the video image, and for producing digital photographs of the television picture.

PART 3 - EXECUTION

3.1 PROCEDURE

A. Normally, the camera will be set up in the upstream manhole. Where the setup causes the camera lens to be positioned a distance upstream or downstream of the manhole wall, the operator shall make a visual observation of that portion of the sewer pipe not captured on the video tape and record the observations by voice over on the video tape.

B. The height of the camera shall be adjusted so that the lens is at the center of the pipe.

C. The camera will be moved through the line in either direction at a moderate rate, stopping when necessary to permit proper documentation of the sewer's condition. In no case will the television camera be pulled at a speed greater than 30 feet per minute. Manual winches, power winches, TV cable, and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the sewer conditions shall be used to move the camera through the sewer line.

D. The camera will be moved to the far manhole and the recording shall show the condition of the manhole trough. The operator shall make a visual observation of the far manhole. Connecting pipes and manhole defects not captured on the video shall be recorded by voice over on the video tape and written in the television inspection log.

E. Connections to the sewer shall be televised using the pan and tilt capabilities of the camera. The camera shall be positioned in the sewer at a location which maximizes the sight distance up the connecting pipe. The acceptable length of televising shall be a distance of 6 feet, or to the end of the pipe (if capped), or to the first bend (if a wye).

F. If, during the inspection operation, the television camera will not pass through the entire manhole section, the Contractor shall perform a reverse setup (set up his equipment so that the inspection can be performed from the opposite manhole). If, again, the camera fails to pass through the entire manhole section, the manhole section will be referred to the Engineer for evaluation.

G. When manually operated, winches are used to pull the television camera through the line, telephones or other suitable means of communication shall be set up between the two manholes of the section being inspected to insure good communications between members of the crew.

H. The importance of accurate distance measurements is emphasized. Measurement for location of defects shall be by means of a footage counter with the value displayed on the video tape. The footage counter shall be set such that zero is the center of the beginning manhole. Marking on the cable, or the like, which would require interpolation for depth of manhole, will not be allowed. Accuracy of the footage counter shall be checked above ground by use of a walking meter, roll-a-tape, or other suitable device. The footage counter shall be calibrated to an accuracy that is satisfactory to the Engineer.

I. Documentation of the television results shall be as follows:

1. Television Inspection Logs: Printed location records shall be kept by the Contractor and will clearly show the location in relation to an adjacent manhole of each infiltration point observed during inspection. In addition, other points of significance such as locations of building sewers, unusual conditions, roots, storm sewer connections, broken pipe, presence of scale and corrosion, and other discernible features will be recorded and a copy of such records will be supplied to the Owner. Each feature called out on the inspection log shall be identified as to its location on the videotape by means of a footage counter. When more than one manhole section is recorded on a video tape, the television inspection log shall record the elapsed tape time from the beginning of the tape to the beginning of the manhole section.

2. Photographs: Digital photographs of the television picture of problems shall be taken by the Contractor upon request of the Engineer, as long as such photographing does not interfere with the Contractor's operations.

3. Videotape Recordings: The purpose of tape recording shall be to supply a visual and audio record of problem areas of the lines that may be replayed. Videotape recording playback shall be at the same speed that it was recorded. Slow motion or stop-motion playback features may be supplied at the option of the Contractor. Title to the tape shall be given to the Owner upon completion of the project. The Contractor shall have all videotapes and necessary playback equipment readily accessible for review by the Owner during the project.

END OF SECTION 330130.17

SECTION 330130.61 - SEWER PIPE JOINT SEALING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications sections, apply to work of this section.

B. Other Sections Referenced:

1. Section 330130.01 – Sewer Collection System Rehabilitation Definitions

2. Section 330130.03 – Sewer Flow Control

3. Section 330130.17 – Television Inspection

4. Section 330130.63 – Chemical Sealing Materials

1.2 DESCRIPTION OF WORK

A. A chemical grout shall be injected into and around joints from the inside of the pipe to seal and prohibit groundwater and sediment from infiltrating the pipe. The material shall fully seal the joints whether they show signs of separation or are still intact.

B. Injections shall take place from in the pipe and shall be injected manually by worker through drilled pilot holes. Pilot holes shall have any injection pipe removed or cut down to the existing surface of the pipe once material has cured. All residual material shall be cut away from the joint once the material has cured

1.3 QUALITY ASSURANCE

A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's technical data and application instructions.

B. Submit Material Safety Data Sheets for the chemicals used in the grout and root inhibitor.

C. Equipment Data: Submit equipment manufacturer's technical data and operating instructions for the joint packing equipment to be used.

PART 2 - PRODUCTS

2.1 GENERAL

A. All equipment and material shall be of a type that has been in general use for a period of five (5) years. Work performed with experimental equipment or material will not be permitted without prior written consent of the Owner.

2.2 MATERIAL

A. Grout: The sealing material shall be formed from a material specified in 330130.63 – Chemical Sealing Materials that is mixed within the void area.

2.3 EQUIPMENT

A. The basic equipment shall consist of a television inspection system, necessary chemical sealant containers, pumps, regulators, valves, hoses, etc., and joint sealing equipment for the various sizes of sewer pipes.

1. The equipment shall be constructed in such a way as to provide means for introducing the sealing materials, under pressure, into the void area created by the expanded ends of the joint-testing device and means for continuously measuring the actual static pressure of the materials at and within the void area only.

2. Void pressure data shall be transmitted to the televising recording equipment via an electrical pressure transducer located at the void.

B. Sealing equipment shall be housed in a suitable vehicle and arranged to allow for continuous observation of the television monitor and sealing equipment by the Engineer and three (3) other representatives of the Owner.

C. The pumping unit, metering equipment, and the sealing device shall be designed so that the proportions and quantities of materials can be regulated in accordance with the type and size of the leak being sealed.

PART 3 - EXECUTION

3.1 PREPARATORY WORK

A. Prior to sealing a section of sewer, the pipe shall be cleaned and the flow controlled to enable a suitable depth for the sealing equipment (see Segmental Sliplining with GRP composites and Sewer Flow Control). The cost of this work shall be considered incidental to Sewer Pipe Joint Sealing and included in the price bid thereof.

3.2 JOINT SEALING PROCEDURE

A. All joints, leaks or breaks shall be sealed. Sealing shall be accomplished by forcing the chemical sealing materials into or through joints, leaks or breaks by a system of pumps, hoses, and sealing injectors.

B. Jetting or driving pipes from the surface that could damage or cause undermining of the pipe lines shall not be allowed. Uncovering the pipe by excavation of pavement and soil (which would disrupt traffic, undermine adjacent utilities and structures, and cause further damage to the pipe lines being repaired) shall not be allowed.

C. Into this isolated area, sealant materials shall be pumped through the hose system at controlled pressures which are in excess of groundwater pressures.

3.3 SEAL VERIFICATION

A. Upon completion of the sealing of each individual joint, visual verification of joints shall be examined to ensure material has filled voids and complete perimeter around the pipe of each joint. If joints are still intact and no material exits out of the joint, completion shall either be when material is no longer able to be injected in pilot holes or encompasses approximately 1 ft around the perimeter of the joint. Contractor shall provide an estimated quantity based on material type in pounds or gallons to fill 1 ft around the entire perimeter of the joint prior to construction. Engineer shall approve prior to construction the minimal quantity of material for intact joint before construction commences.

B. Should the void pressure meter not read zero, the Contractor shall clean their equipment of residual grout material or make the necessary equipment repairs/adjustments to produce accurate void pressure readings.

C. Joints that fail to meet the specified test criteria shall be resealed and retested until the test criteria can be met in order to receive payment.

D. As a substitute to joint injections, the Contractor may use Hydratite joint seal, or approved equivalent, to seal joints. The joint must be stable, showing no signs of voids or deformation, in order to deem the Hydratite joint seal a suitable substitute.

3.4 RESIDUAL SEALING MATERIAL

A. Residual sealing materials that extend into the pipe, reduce the pipe diameter, or restrict the flow shall be removed from the joint. The sealed joints shall be left reasonably "flush" with the existing pipe surface.

B. If excessive residual sealing materials accumulate in the line and/or if directed by the Engineer the manhole section shall be cleaned to remove the residual materials. In no case shall excess grout material be flushed down the sewer.

3.5 RECORDS

A. Video recordings shall be kept of the joint sealing performed in each manhole section. The following information shall be recorded on the videotape:

1. Identification of the manhole section sealed.

2. The footage location of each joint sealed, measured from the upstream manhole.

3. Void pressure continuously recorded throughout the joint sealing procedure.

4. Number of gallons or pounds of sealant used.

5. A verbal statement indicating the sealing results (passed or failed) for each joint sealed.

6. If a joint is not grouted, a verbal statement indicating the reasons for not sealing the joint.

B. Written records also shall be kept of joint sealing performed in each manhole section. Written records shall include:

1. The footage location of each joint sealed, measured from the upstream manhole.

2. Sealing pressure at refusal.

3. Number of gallons or pounds of sealant used.

4. A statement indicating the sealing results (passed or failed) for each joint sealed.

C. The complete sealing of each joint, leak or break shall be recorded on the video tape from the beginning of the pressure buildup in the void, through the pressure holding period, to the time of pressure release.

D. A copy of the written records and title to the video recordings shall be given to the Owner prior to payment for Sewer Pipe Joint sealing.

3.6 GUARANTY

A. All sewer pipe joint sealing work performed shall be guaranteed against faulty workmanship and/or materials for a period of one year after the completion of the work.

1. Prior to the expiration of the guaranty period, an initial retest area consisting of specific manhole sections shall be selected by the Engineer/Owner. The initial test area shall consist of at least 5%, but not exceed 10%, of the linear feet contained in the original project.

2. Within the initial retest area, the Contractor shall retest all previously sealed joints. Any joints failing the retest shall be resealed. If the failure rate of the retested joints is less than 1% of the joints retested, the work shall be considered satisfactory and no further retesting will be required. Payment for retesting the initial area shall be at the

unit price bid for each item of work required (e.g.: cleaning, TV inspection, testing, etc.). No compensation shall be provided for resealing (grouting) joints that fail.

3. If, in the initial retest area, the failure rate of the retested joints exceeds 1% of the joints retested, an additional retest area of equivalent size shall be selected and all previously sealed joints shall be retested. This additional testing and sealing, if necessary, will continue until a failure rate of less than 1% is met. Any additional testing/sealing required beyond the initial retest area shall be accomplished at no cost to the Owner.

4. Should as much as 25% of the original project be retested and fail to meet the 1% requirement, the Contractor will be required to provide the same number of crews as utilized in the original project so that the retesting will proceed at a more rapid rate.

END OF SECTION 330130.61

SECTION 330130.63 - CHEMICAL SEALING MATERIALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications sections, apply to work of this section.
B. Other Sections Referenced:
   1. Section 330130.61 - Sewer Pipe Joint Sealing

1.2 DESCRIPTION OF WORK

A. The intent of this section is to define the properties that a sealing material must have to perform effectively in the intended application and under expected field conditions.
B. Generic chemical sealing materials currently in use are listed with the basic properties, performance standards, and mix ratios which are known to give acceptable performance.
C. It is recognized that new and improved chemical sealing materials will become available from time to time. Sources, manufacturers, and product names of chemical sealing materials will thus change from time to time and therefore specific sources, manufacturers, and product names are not referred to in this specification.
D. It should be understood that all of the generically classified chemical sealing materials can achieve desired long-lasting results when used in the proper application and properly applied. The knowledge and skill of the applicator has a greater effect on achieving the desired results than the specific sealing material applied.
E. In every case, mixing and handling of chemical sealing materials shall be in strict accordance with the manufacturer's recommendations.

1.3 QUALITY ASSURANCE

A. All chemical sealing materials used in the performance of the work specified must have the following properties and characteristics:

   1. While being injected, the chemical sealant must be able to react/perform in the presence of water.
   2. The cured material must be capable of withstanding submergence in water without degradation.
   3. The resultant sealant formation must prevent the passage of water.
   4. The sealant material, after curing, must be flexible as opposed to brittle or rigid.
   5. In place, the resultant sealant formation should be able to withstand freeze/thaw and wet/dry cycles without adversely affecting the seal.
   6. The sealant formation must not be biodegradable. Additives may be used to meet this requirement.
   7. The cured sealant should be chemically stable and resistant to concentrations of acids, alkalis, and organics found in normal sewage.
   8. Packaging of component materials must be compatible with field storage and handling requirements. Packaging must provide for worker safety and minimize spillage during handling.

9. Mixing of component materials must be compatible with field operations and not require precise measurements.
10. Clean-up must be done without inordinate use of flammable or hazardous chemicals.
11. Residual sealing materials must be removable from the sewer after injection to insure no flow reduction, restriction, or blockage of normal sewage flows.
12. Chemical sealants shall be free of byproducts that may be released after curing that may infiltrate into groundwater or the flow within the sewer. The Contractor must provide documentation from manufacturer stating the chemical materials are safe to use in stormwater sewer applications and that no banned or unsafe chemicals will be released during the injection process or after the materials fully cure.

PART 2 - PRODUCTS

2.1 CHEMICAL SEALING MATERIALS

A. The following is a generic listing of chemical sealing materials currently in use and the basic requirements, properties and characteristics of each:

1. Single component polyurethane base foam chemical sealing material requirements, properties, and characteristics:

   a. Single component prepolymer base
   b. A liquid prepolymer having a specific gravity of 1.12 (9.35 pounds per gallon), and flash point of 20°F.
   c. A liquid prepolymer having a viscosity of 100 to 200 centipoise at 70°F that can be pumped through 500 feet of one-half (1/2) inch hose with a 500 psi head at a one (1) ounce/second flow rate.
   d. During injection; foaming, expansion, and viscosity increase take place.
   e. Physical properties of the cured foam of approximately; fifty five (55) pounds per cubic foot density, 110 to 140 psi tensile strength, and a confined expansion to forty (40) times its initial liquid volume.

2. Dual component polyurethane base foam chemical sealing material requirements

   a. Foam system shall be TerraThane 24-003 or approved equivilant
   b. Component A: Methylene diphenyl diisocyanate (MDI)

      1) specific gravity of 1.17.
      2) viscosity of 500 centipoise at 72°F.

   c. Component B: Resin

      1) specific gravity of 1.24.
      2) viscosity of 200 centipoise at 72°F.

   d. Physical properties of the cured foam of approximately; 5-7 pounds per cubic foot density, 100 to 120 psi tensile strength.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 330130.63

SECTION 330130.73 – SPRAY APPLIED PIPE LINING (SAPL)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

B. Other Sections Referenced:
   1. Section 330130.01 - Sewer Collection System Rehabilitation Definitions
   2. Section 330130.03 - Sewer Flow Control
   3. Section 330130.17 - Television Inspection

1.2 REFERENCES

A. ASCE Manual of Practice No. 145 – Design of Close -Fit Liners for Rehabilitation of Gravity Pipes

B. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field

C. ASTM C39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

D. ASTM C78 – Flexural Strength of Concrete

E. ASTM C109 – Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50 mm] Cube Specimens)

F. ASTM C469 – Static Modulus of Elasticity & Poisson's Ratio of Concrete Compression

G. ASTM C496 – Splitting Tensile Strength of Cylindrical Concrete Specimens

H. ASTM C666 – Freeze Thaw Durability

I. ASTM C807 – Set Time of Hydraulic Cement Mortar

J. ASTM C 868 – Standard Test Method for Chemical Resistance of Protective Linings

K. ASTM C882 – Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear

L. ASTM C1090 – Shrinkage Test

M. ASTM C1138 - Standard Test Method for Abrasion Resistance of Concrete (Underwater Method)

N. ASTM C 1583/1583M – Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method

O. ASTM C1898 – Standard Test Methods for Determining the Chemical Resistance of Concrete Products to Acid Attack

P. ASTM C1904 – Standard Test Methods for Determination of the Effects of Biogenic Acidification on Concrete Antimicrobial Additives and/or Concrete Products

Q. ASTM D7682 – Standard Test Method for Replication and Measurement of Concrete Surface Profiles Using Replica Putty

R. ASTM F2304 – Standard Practice for Rehabilitation of Sewers Using Chemical Grouting

S. ASTM F2414 – Practice for Sealing Sewer Manhole Using Chemical Grouting

T. NACE SP0188 – Standard Practice for Discontinuity (Holiday) Testing of Protective Linings

U. NACE No. 6/SSPC-SP13 – Surface Preparation of Concrete

V. OSHA Safety and health Standards (29 CFR 1910/1926)

W. SSPC-SP13/NACE No. 6 – Surface Preparation of Concrete

X. SSPC-Guide 12 – Guide for Illumination of Industrial Painting Projects

1.3 DESCRIPTION OF WORK

A. The product furnished shall be a complete spray-applied-pipe-liner (SAPL) system including materials, equipment, and installation procedures. Submitted SAPL products for consideration shall be required to meet the submittal requirements as contained herein.

B. The Contractor shall provide materials, labor, equipment, and design services necessary for traffic control (if required), bypass pumping and/or diversion of flows, cleaning, measurement and television inspection of sewers to be rehabilitated, SAPL installation, reconnection of service connections, quality controls, provide samples for performance of required material tests, final television inspection, testing of the rehabilitated pipe system, warranty work and other work, as specified herein.

C. The intent of SAPL is to rehabilitate sewer lines by installing structural cementitious or geopolymer mortar spray-applied liner which, once cured, shall be continuous and tight-fitting in a constrained condition with a shear interface with the host throughout the entire length of the original pipeline. The SAPL shall extend the full length of the original pipeline and provide a structurally sound, jointless rehabilitation-solution with no annular space and permanent adhesion between the SAPL and the original pipeline (host pipe). Epoxy, polyurea, polyurethane, resin-impregnated tube, cured-in-place, and any other polymer-based lining system shall not be accepted as the structural liner material. The Contractor is responsible for proper, accurate and complete installation of the SAPL using the system selected by the Contractor meeting the Owners requirements and these specifications. Deficiencies which will be corrected by the finished product include:

1. Cracked and broken pipe caused by poor construction, unstable soil, earth movement, infiltration, roots, destructive loadings, cleaning tool damage, etc.
2. Corrosion of pipe caused by acid attack above the flow line.
3. Erosion of pipe caused by abrasion below the flow level.
4. Degradation of brick pipe caused by loss of masonry.
5. Infiltration of groundwater and soil through leaking pipe joints and structural defects.
6. Exfiltration of transported fluid through leaking pipe joints and structural defects.
7. Inflow of surface water and infiltration of groundwater through unused or illegal connections.

D. The SAPL system shall be designed for a life of 50 years or greater and an equal service life unless specifically specified otherwise by the Owner.

E. The installed SAPL system shall withstand all applicable surcharge loads (soil overburden, live loads, etc.) and external hydrostatic (groundwater) pressure, if present, for each specific installation location.

F. The installed SAPL system shall have a long term (50 year or greater) corrosion resistance to the typical chemicals found in stormwater runoff and defined in the referenced and applicable ASTM standards.

G. Neither the SAPL product, system, nor its installation, shall cause adverse effects to any of the Owner's processes or facilities. The installation pressure for the product shall not damage the system in any way. The Contractor shall notify the Owner and identify any by-products produced as a result of the installation operations, and test and monitor the levels. The Contractor shall cleanup, restore existing surface conditions and structures, and repair any of the SAPL system determined to be defective. The Contractor shall conduct installation operations and schedule cleanup in a manner to cause the least possible obstruction and inconvenience to traffic, pedestrians, businesses and property owners or tenants.

1.4 QUALITY ASSURANCE

A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

B. Installer's Qualifications: Firms with at least 5 successfully completed projects having installed an aggregate total of 5,000 linear feet of the submitted manufacturer's SAPL.

C. Contractor shall submit a written plan with means and methods for installing specified SAPL system. Plan shall be called Performance Work Plan (PWP). This will be made available to the Engineer prior to approval of work and shall identify quality checks to be performed and installation crew qualifications.

D. The Contractor shall outline specific repair or replacement procedures for potential defects that may occur in the installed SAPL. Repair/replacement procedures shall be as recommended by the SAPL system manufacturer and shall be submitted as part of the PWP.

E. Defects in the installed SAPL that will not affect the operation and service life of the product shall be identified and defined.

1.5 SUBMITTALS

A. Comply with all provisions of Section 013323 – Shop Drawings and Submittals

B. Manufacturer-certified copies of all test reports on each product used, including:
   1. Test results indicating the product conforms to and is suitable for its intended use per these specifications. Test reports shall be performed at the Licensed Applicator's expense and shall be carried out by an approved independent third-party testing laboratory or by a reputable independent testing body. As a minimum, the test reports should include properties listed in Paragraph 2.5 of this specification.

C. Submit Material Safety Data Sheet(s) for the materials, any other chemical additives, and any other chemicals used in the SAPL system.

D. Minimum Thickness Calculations with approvable design calculations as required along with proposed plan for ensuring that the installed SAPL meets the minimum thickness. The finished liner thickness shall not be less than 2 inches measured from the crest of the existing corrugations.

1.6 SAFETY

A. The Contractor shall conform to all work safety requirements of pertinent regulatory agencies, and shall secure the site for the working conditions in compliance with the same. The Contractor shall erect such signs and other devices as are necessary for the safety of the work site.

B. The Contractor shall perform all of the work in accordance with applicable OSHA standards. Emphasis shall be placed upon the requirements for entering confined spaces and with the equipment being utilized for pipe renewal.

C. The Contractor shall submit a proposed Safety Plan to the Owner, prior to beginning any work, identifying all competent persons. The plan shall include a description of a daily safety program for the job site and all emergency procedures to be implemented in the event of a safety incident. All work shall be conducted in accordance with the Contractor's submitted Safety Plan.
   1. Safety plan shall include a notification of work flyer that will be distributed to all properties connected to the sewer that will be worked on. Notification shall include details of work, dates for expected installation of SAPL, and best measures for preventing dust control during material handling and mixing.

D. Compensation for all work required for the submittal of the Safety Plan shall be included in the various pipelining items contained in the bid proposal.

1.7 STORAGE OF MATERIALS

A. Deliver materials in original containers with seals unbroken and labels intact and free of moisture. Do not use materials that have been directly exposed to moisture or if there is visible damage to the packaging.

B. Project materials shall be inspected by the Contractor upon receipt and the Bill of Lading reviewed to confirm it properly documents amount(s) and type(s) of material(s) received, date and time of delivery as well as the shipping company delivering the material. Contractor shall log and make available for review Bill of Lading and material batch numbers upon receipt of the material(s). Receipt of material should also be noted in daily activity logs.

C. Materials may be stored offsite, such as in a yard, for a period prior to use on the project. Upon delivery to the project, Contractor shall designate a specific protected space at the project site for staging and mixing materials. Do not store kerosene, gasoline, or other flammable liquids in this space. Remove oily rags at the end of each day's work. Regardless of storage location, materials used for rehabilitation are to be kept dry, protected from weather, and stored under cover within the temperature ranges recommended by the Manufacturer. Products are to be stored and handled according to their SDSs or appropriate classification. Damaged or unsuitable products shall be promptly removed from the Project site and shall not be incorporated into the Work.

1.8 AS-BUILT DRAWINGS/RECORDS

A. Digital copies of As-Built drawings/records and pre & post inspection videotapes shall be submitted to the Owner via a USB or email, by the Contractor, within 2 weeks of final acceptance of said work or as specified by the Owner. As-Built drawings/records will include the identification of the work completed by the Contractor and shall be prepared on one set of Contract Drawings/Records provided to the Contractor at the onset of the project.

1.9 WARRANTY

A. The materials used for the project shall be certified by the manufacturer for the specified purpose. The Contractor shall warrant the SAPL material and installation for a period of one (1) year. During the Contractor warranty period, any defect which may materially affect the integrity, strength, function and/or operation of the pipe, shall be repaired at the Contractor's expense in accordance with procedures as recommended by the manufacturer.

B. After a pipe section has been rehabilitated and for a period of time up to one (1) year following completion of the project, the Owner may inspect all or portions of the rehabilitated system. The specific locations will be selected at random by the Owner's inspector and should include all sizes of SAPL from this project. If it is found that any of the SAPL has developed abnormalities since the time of "Post Construction Television Inspection," the abnormalities shall be repaired and/or replaced in accordance with plans, specifications, and Owner standards.

C. On any work completed by the contractor that is defective and/or has been repaired, the contractor shall warrant this work for (1) year in addition to the warranty required by the contract.

1.10 GENERAL

A. All equipment and material shall be of a type that has generally been in use for a period of five (5) years. Work performed with experimental equipment or material will not be permitted without prior written consent of the Owner.

PART 2 - MATERIALS

2.1 MATERIALS

A. The SAPL system must meet the physical performance requirements of these contract documents.

B. All materials used in the installation of SAPL system shall be equal to or exceed the manufacturer's standards.

C. Minimum Design Properties
   1. The Contractor shall provide a detailed calculation using the appropriate methods and standards to determine the thickness of the SAPL system so that it meets minimum design criteria listed below:
      1) All pipe shall be considered fully deteriorated.
      2) All pipe shall be subjected to soil loads of 120 pounds per cubic foot.
      3) All pipe shall be subject to AASHTO HS-20 highway loading.
      4) The water table shall be assumed to one foot (1 ft) above the top of pipe
      5) All pipe ovality values shall be as determined by the existing condition assessments provided in the contract documents.
      6) Creep Retention Factor 50%.
      7) Constrained Soil Modulus per AASHTO LRFD Section 12 and AWWA Manual M45.
      8) Minimum Service Life 50 years.
      9) Design Safety Factor of 2.0 (1.5 for pipes 36” or larger)

D. Minimum Thickness
   1. Design thickness for cementitious or geo liner shall at a minimum be the following unless otherwise specified on drawings or submitted by the Contractor and approved by the Engineer:

Diameter/Span of Pipe	Min. Liner Thickness
120 inch	2.0 inch

2. For corrugated host pipe materials, the minimum thickness shall be measured from the peaks/crests of the corrugation. The corrugations shall be filled to create a flush, smooth pipe surface.
3. If the minimum thickness exceeds that of the calculated thickness provided by the Contractor, the minimum thickness for shall govern as the design thickness for the SAPL system.
4. For design of thickness of liner, the Contractor shall utilize ASCE MOP 145.

E. Physical Properties
1. The cured pipe material shall conform to the minimum structural standards as listed below. Evidence shall be presented to demonstrate that the long-term modulus of elasticity of the cured product is no less than fifty percent (50%) of the herein specified Modulus of Elasticity (Short-term).

CEMENTITIOUS AND GEOPOLYMER MINIMUM PHYSICAL PROPERTIES

Cured Pipe Material Test	Test Method	Performance Value
Compressive Strength	ASTM C39 /C-109	Min. 8,000 psi @ 28 days
Flexural Strength	ASTM C78/C-293	Min. 800 psi @ 28 days
Modulus of Elasticity	ASTM C469	Min. 3.9×10^6 psi @ 28 days
Split Tensile Strength	ASTM C496	Min. 700 psi @ 28 days
Freeze Thaw Durability	ASTM C666	Max 0.5% loss @ 300 cycles
Bond Strength to Concrete	ASTM C882	Min. 2,500 psi @ 28 days
Shrinkage Test	ASTM C1090	Max 0.02% loss @ 28 days
Abrasion Resistance	ASTM C1138	Max 36.3 in^3 total vol. loss @ 6 cycles on 28-day sample
Chemical Resistance	ASTM D543	Manufacturer Certified

F. Approved SAPL system are listed below. Alternative products may be accepted if they are considered equivalent and meet or exceed the specifications detailed in this section.
1. Quadex Lining System with Geokrete Geopolymer by Vortex Companies
2. Geospray by Geotree
3. PERMACAST PL-8,000
4. Approved Equivalent

PART 3 - EXECUTION

3.1 PREPARATORY PROCEDURES

A. The Contractor shall notify all homeowners on the manhole section to be lined forty-eight (48) hours in advance of the work to be done. The Contractor shall inform the homeowner of precautions necessary to prevent backup of sewage into the house. Notification shall include

language that the work may extend beyond normal permitted working hours, if necessary to reinstate service laterals

B. The following preparatory procedures shall be adhered to unless otherwise approved by the Engineer:

1. Cleaning of Sewer Line: Before ordering liner materials for the project, the Contractor shall remove all internal debris from the pipeline that will interfere with the installation or adhesion of SAPL materials and the final product delivery of the SAPL materials, as required in these specifications, and shall accurately measure and document the exact size of the existing pipeline to be rehabilitated. Solid debris and deposits shall be removed from the system and disposed of properly by the Contractor. Moving material from manhole section to manhole section shall not be allowed. All debris, cleaning residue or other material loosened during cleaning shall be removed from the pipe. Material shall not be permitted to enter downstream channels. As applicable, the contractor shall either plug or install a flow bypass pumping system to properly clean the pipelines.

2. The Contractor shall provide equipment and methods suitable for the size, configuration, material, and condition of the pipe being cleaned. Equipment shall be capable of adequately cleaning and preparing the full host-pipe surface for SAPL installation. The Contractor shall be responsible for selecting equipment appropriate for the work and modifying cleaning methods as necessary to achieve the specified results without damaging the host pipe. The repair of any damage, caused by the cleaning equipment, shall be the responsibility of the Contractor. If the Contractor determines that continued cleaning may damage a severely deteriorated portion of the host pipe or paved concrete invert, the Contractor shall stop cleaning in the affected area and notify the Engineer. Cleaning shall not resume in the affected area without approval from the Engineer. The Owner will designate a site for the disposal of all debris removed from the Owner's sewer system as a direct result of the cleaning operation. Fees associated with disposal of all debris shall be included in the applicable SAPL bid item.

3. Cleaning and surface preparation shall extend over the full interior surface to receive SAPL, including the crown, sidewalls, corrugation crests and valleys, seams, joints, fasteners, and interfaces with the existing paved concrete invert. The existing paved concrete invert shall remain in place and shall not be removed or reconstructed as part of the SAPL Work. Loose, delaminated, or deteriorated portions of the paved concrete invert shall be removed only where approved by the Engineer. Cleaning operations shall not damage sound portions of the paved concrete invert designated to remain.

4. Inspection of Sewer Line: In accordance with the Television Inspection requirements, the Contractor shall televise the pipe with PACP certified personnel specially trained in locating breaks, obstacles, and service connections. The interior of the sewer line shall be carefully inspected to determine the location and extent of any structural failures. The location of any conditions which may prevent proper installation of the SAPL shall be noted so that such conditions can be corrected.

5. The Contractor shall provide the Owner and Engineer with digital copies of the pre-cleaning and post-cleaning video and inspections logs for review prior to installation of the SAPL and for later reference by the Owner. The inspection records shall identify remaining defects, areas of deteriorated material, limits of the paved concrete invert, and the locations requiring repair prior to lining. If the post-cleaning inspection identifies surfaces that are unacceptable for SAPL installation, the Contractor shall perform additional cleaning and surface preparation at no additional cost to the Owner. If sediment, corrosion products, contamination, or other unacceptable conditions return before SAPL placement, the affected surfaces shall be recleaned.

6. Connections: While televising the mainline sewer, the Contractor shall accurately measure and record the locations and positions of service connections using a fiberglass or other tape approved by the Engineer. Additionally, the Contractor shall utilize the pan and tilt capabilities of the televising equipment to determine which connections are live (active) and which are not in use. If required by the Contract documents, each connection will be dye tested to determine whether the connection is live or abandoned.

7. Bypassing Sewage: The Contractor shall provide for the flow of existing mainline and service connection effluent around the section or sections of pipe designated for SAPL installation. With most small diameter pipelines, particularly on terminal sewers, plugging will be adequate but must be monitored on a regular basis to prevent backup of sewage into adjacent homes. Service connection effluent may be plugged only after proper notification to the affected residence and may not remain plugged overnight. Installation of the liner shall not begin until the Contractor has installed the required plugs or a sewage bypass system and all pumping facilities have been installed and tested under full operating conditions including the bypass of mainline and side sewer flows. Once the installation has begun, existing flows shall be maintained, until the resin/tube composite is fully cured, cooled down, full televised and the SAPL ends finished. The Contractor shall coordinate sewer bypass and flow interruptions with the Owner at least 14 days in advance and with the property owners and businesses at least 1 business day in advance. The pump and bypass lines shall be of adequate capacity and size to handle peak flows. The Contractor shall submit a detail of the bypass plan and design to the Owner before proceeding with any SAPL installation. Compensation for bypass pumping and all associated plans and approvals shall be at the price bid in the Proposal. All bypassing of flow shall be performed as specified under 330130.03 - SEWER FLOW CONTROL.

8. Line Obstructions: It shall be the responsibility of the Contractor to clear the line of obstructions such as solids, dropped joints, protruding service connections, or collapsed pipe that will prevent installation. If the obstruction(s) could have been removed by bucket machines or by using conventional cleaning methods, no additional compensation will be granted.

    a. Internal repairs are protruding service connections, dropped portions of pipe which can be removed or pushed back in place, and other obstructions which cannot be cleared using conventional cleaning methods, but which can be cleared from within the pipe. Such internal repairs shall be approved in writing

by the Engineer prior to the commencement of the work and shall be included in the 120 Inch Spray Lining item.

b. Point repairs are obstructions that cannot be removed by either conventional sewer cleaning equipment or by internal equipment. The Contractor shall make an excavation to expose and remove or repair the obstruction. Such excavation shall be approved in writing by the Engineer prior to the commencement of the work, shall be performed as specified under Point Repairs, and shall be included in the 120 Inch Spray Lining item.

Patching shall be performed at locations where holes or soil are visible within the pipe, but the pipe is otherwise in a condition that it is able to have the SAPL system applied. The Contractor shall apply patching material that is able to properly fill any holes and voids, be smoothened to match the existing pipe surface once cured, and properly adhere to the SAPL. Such work shall be approved in writing by the Engineer prior to the commencement of the work and shall be specified under Patching or Joint Repair, and shall be included in the 120-Inch Spray Lining item.

9. Pre-Insertion Television Inspection: The Contractor shall televise and record the sewer pipe immediately before installing SAPL. This televising is to assure that the pipe is clean and that host-pipe surface, paved concrete invert, repairs, and existing pipe conditions are acceptable for lining. Should additional cleaning or surface preparation be required, it shall be provided at no additional cost to the Owner. The cost of this televising shall be included in the cost of SAPL.

3.2 INSTALLATION PROCEDURES

A. The liner shall be mixed, installed, and cured (as applicable) in the host pipe per the manufacturer's specifications as described and submitted in the PWP. For non-water based SAPL, materials shall be mixed (when applicable) with the SAPL manufacturer's recommendations component ratio, mix time, temperature, dispersion, and other requirements. Appropriate documentation shall be kept in a Daily Application Log throughout the installation process. The mixing and preparation operations must be performed so that the minimum amount of dust is released into the surrounding environment.

B. The SAPL installation shall be in accordance with the applicable ASTM/ACI standards and manufacturer's instructions.

C. The SAPL material may be spray applied and/or centrifugally spin-cast to the inside of an existing pipeline or structure depending on size of pipe and manufacturer application requirements. The necessary equipment and application methods to apply the liner materials shall be only as provided by the SAPL material manufacturer. Material shall be mixed in accordance with manufacturer's recommendations to proper consistency, then the materials shall be pumped through a high-pressure material hose for delivery to the appropriate and / or selected application device.

3.3 FINISH

A. The installed SAPL shall be continuous over the entire length of a lined section (unless specified) and be free from visual defects such as foreign inclusions, infiltration) major surface profile deviation and delamination. The SAPL shall be impervious and free of any leakage through the SAPL wall.

B. Defects that affect the structural integrity or strength of the SAPL shall be repaired at the Contractor's expense in accordance with the procedures submitted under Section 1.4

C. Using the records from the pre-construction inspections, the Contractor shall ensure that connections are properly reinstated and service restored. Excess SAPL material at the connection shall be removed and disposed to an approved waste facility by the Contractor. The Contractor shall ensure that no infiltration is originating at the point of connection by sealing any leaks with appropriate product(s). The laterals and pipe connections shall then be completed by hand, applying the SAPL to the outer surface of the connection to the pipe and smoothly tapering it into the lateral or connecting pipe. No rough edges or abrupt transitions that could catch debris or hinder the flow shall remain.

D. Termination of the SAPL at the end of a pipe or manhole shall be completed by hand applying the SAPL to the outer surface of the pipe or into the interior of the manhole.

3.4 TESTING OF INSTALLED SAPL

A. The physical properties of the installed SAPL shall be verified through field sampling and laboratory testing. Mixed materials for testing shall be furnished by the Contractor to the testing laboratory for sample preparation at the job site, transport to the lab and testing. Sample preparation, transport and materials testing shall be performed at the Contractor's expense by an independent third-party laboratory selected by the Contractor as recommended by the SAPL manufacturer. All tests shall be in accordance with applicable ASTM test methods to confirm compliance with the requirements specified in these contract documents.

B. The Contractor shall provide mixed material samples from the actual installed SAPL for sample preparation to the testing laboratory. Samples shall be provided from the first and last day of installation and every 42,000 lbs | 19,050 kg of material during application of SAPL or as required by the Owner. The sample shall be collected from the mixer/hopper or if appropriate, the end of the application hose. Sample collection and testing hold times will be per manufacturer's recommendations.

C. For ASTM C39 Compressive samples, nine (9) four (4) by eight (8) inch | 100 x 200 mm test cylinders be prepared following ASTM C 31. Alternatively, ASTM C109 Compressive samples in the form of two (2) by two (2) by two (2) | 50 x 50 x 50 mm test cubes can be prepared. It is

recommended that three (3) samples be tested at 7 days, three (3) at 28 days and three (3) retained as directed by the Contractor

D. The laboratory results shall identify the project, the test sample date, location as referenced to the nearest manhole and station, product batch and mix information. Final payment for the project shall be withheld pending receipt and approval of the test results. If properties tested do not meet the minimum physical and thickness requirements, the SAPL shall be repaired or replaced by the Contractor unless the actual physical properties and the thickness of the sample tested meet the design requirements as required in the contract.

E. The installed SAPL thickness shall be confirmed during application through the visual observation and monitoring of the permanent depth gauges and use of a handheld depth gauge by the installer. Pre- and Post-installation video should show the presence of the depth gauge (pre) and coverage of the depth gauge indicated by it no longer being visible (post).

F. Visual inspection of the installed SAPL lining for installation defect to include cracks, infiltration, surface texture and spray defects.

G. Adhesion testing shall be performed for SAPL systems that have been applied to steel or concrete host pipes. Testing shall be in accordance with ASTM D4541 or ASTM D7234 and performed based on manufacturer guidelines for quality assurance.

H. All costs to the Contractor associated with providing mixed SAPL material to an independent third-party testing laboratory for sample preparation, transport, curing and testing shall be included in the 120 Inch Spray Lining item.

3.5 FINAL ACCEPTANCE SAPL.

A. A visual inspection shall be made by Owner and Contractor periodically throughout the progression of construction, prior to the completion of a lining stage. Any deficiencies in the finished lining shall be marked and repaired by the Contractor according to the procedures set forth herein.

B. SAPL sample testing and repairs for the installed SAPL, as applicable, shall be completed before final acceptance, meeting the requirements of these specifications, and documented in written form.

C. The Contractor shall perform an internal pipe inspection per PACP requirements in the presence of the Engineer after installation of the SAPL and reconnection of the side sewers. Unedited digital documentation of the inspection shall be provided to the Owner within ten (10) working days of the SAPL installation acceptance.

D. Flow control from the upstream manhole shall be utilized to minimize sewage or stormwater from entering the line during the inspection. In the case of bellies in the line, the pipe shall be cleared of any standing water to provide continuous visibility during the inspection.

E. After the installation work has been completed and all testing acceptable, the Contractor shall clean up the entire project area. All excess material and debris not incorporated into the permanent installation shall be disposed of by the Contractor. Any leaks through the wall of the pipe shall be repaired.

END OF SECTION 330130.73

SECTION 330130.76 – SEGMENTAL SLIPLINING WITH GRP COMPOSITES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

B. Other Sections Referenced:
   1. Section 330130.01 - Sewer Collection System Rehabilitation Definitions
   2. Section 330130.03 - Sewer Flow Control
   3. Section 330130.17 - Television Inspection

1.2 REFERENCES

A. ACSE Manual of Practice No. 145 – Design of Close -Fit Liners for Rehabilitation of Gravity Pipes

B. IGN 4-34-02 – Specification for Glassfibre Reinforced Plastics (GRP) Sewer Linings

C. ACI 299 – Report on Controlled Low-Strength Materials

D. ASTM C939 – Standard Test Method for Flow of Grout Preplaced- Aggregate Concrete (Flow Cone Method)

E. ASTM C495 – Standard Test Method for Compressive Strength of Lightweight Insulating Concrete

F. ASTM C109 – Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50 mm] Cube Specimens)

1.3 DESCRIPTION OF WORK

A. The product furnished shall be a complete supply and installation of Glassfibre Reinforced Plastic (GRP) composite panels via segmental slipling system including materials, equipment, and installation procedures.

B. The Contractor shall provide materials, labor, equipment, and design services necessary for traffic control (if required), bypass pumping and/or diversion of flows, cleaning, measurement and television inspection of sewers to be rehabilitated, GRP sliplining installation, reconnection of service connections, quality controls, provide samples for performance of required material tests, final television inspection, testing of the rehabilitated pipe system, warranty work and other work, as specified herein.

C. The intent of GRP Sliplinging is to rehabilitate sewer lines by installing panel based slip liner that shall be continuous and tight-fitting in a constrained condition with a shear interface with the host throughout the entire length of the original pipeline. The liner shall extend the full length of the original pipeline and provide a structurally sound, water tight,

rehabilitation-solution with no annular space and permanent adhesion between the liner plates, grout material, and the original pipeline (host pipe). The Contractor is responsible for proper, accurate and complete installation of the liner using the system selected by the Contractor meeting the Owners requirements and these specifications. Deficiencies which will be corrected by the finished product include:

1. Cracked and broken pipe caused by poor construction, unstable soil, earth movement, infiltration, roots, destructive loadings, cleaning tool damage, etc.
2. Corrosion of pipe caused by acid attack above the flow line.
3. Erosion of pipe caused by abrasion below the flow level.
4. Degradation of brick pipe caused by loss of masonry.
5. Infiltration of groundwater and soil through leaking pipe joints and structural defects.
6. Exfiltration of transported fluid through leaking pipe joints and structural defects.
7. Inflow of surface water and infiltration of groundwater through unused or illegal connections.

D. The GRP Sliplining system shall be designed for a life of 50 years or greater and an equal service life unless specifically specified otherwise by the Owner.

E. The installed GRP Sliplining system shall withstand all applicable surcharge loads (soil overburden, live loads, etc.) and external hydrostatic (groundwater) pressure, if present, for each specific installation location.

F. The installed GRP Sliplining system shall have a long term (50 year or greater) corrosion resistance to the typical chemicals found in stormwater runoff and defined in the referenced and applicable ASTM standards.

1.4 QUALITY ASSURANCE

A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

B. Installer's Qualifications: Firms with at least 5 successfully completed projects having installed an aggregate total of 5,000 linear feet of the submitted manufacturer's GRP Slipliner.

C. Contractor shall submit a written plan with means and methods for installing specified GRP Sliplining system. This will be made available to the Engineer prior to approval of work and shall identify quality checks to be performed and installation crew qualifications.

D. Confirm the viscosity of the grout mixture in accordance with ASTM C939 to ensure conformance with the submitted grouting plan. Flow properties of grout shall be checked a minimum of once per production run, for every 30 cubic yards, or once per 30 minutes, whichever is more frequent.

E. Confirm the density of the grout mixture in accordance with ASTM C939. Grout density shall be measured and recorded once per production run, for every 30 cubic yards, or once per 30 minutes, whichever is more frequent. The density shall be maintained within +/- 10 % of the design density.

F. Prepare and test quality control samples for compressive strength and density in accordance with ASTM C495 or ASTM C109. Prepare a minimum of two (2) test cubes for each production run, or every 30 cubic yards, whichever is more frequent. The Contractor shall arrange to have test cubes tested at an approved testing facility.

G. Quality Control Records
   1. Maintain the following Quality Control records of the work and provide to the Engineer after completion of the work.
      a. Summary of the GRP Segment manufacturing records, including:
         1) All QA/QC testing carried out in accordance with IGN 4-34-02; and,
         2) A certificate of compliance in accordance with Appendix H of IGN 4-34-02 for each GRP liner design.
      b. A grouting summary including all Quality Assurance (QA) testing reports identified herein.

1.5 SUBMITTALS

A. Comply with all provisions of Section 013323 – Shop Drawings and Submittals

B. The Contractor shall provide GRP liner designs, including final thickness and dimensions, in accordance with the specifications and drawings. This shall be completed and approved by the Engineer at a minimum thirty (30) business days prior to manufacturing of the panels. Submittals to the Engineer shall include but not be limited to:
   1. GRP panel thickness computations including all specified design checks identified in ASCE MOP 145 for a Limit State III condition. Identify design assumptions based on a review of the Sewer Maintenance Inspection that differ from the information provided in the Specifications for the existing sewer design conditions. Design submissions shall include all calculations and shall be submitted on individual calculation sheets for each liner;
   2. Grout mix design and relevant constituent properties for the grout mixture;
   3. Pipe joint assembly requirements
   4. Short term buckling checks for grouting operations.
   5. Panel blocking arrangement as it relates to short term buckling design checks;
   6. Name and Manufacturer of the GRP Panels
   7. Host Pipe Measurements for each specific section of sewer to be lined including sewer length (ft), host pipe dimensions (height, width, radii angles if non-circular), panel dimensions, and sewer inverts (ft).
   8. Other information pertinent to the design and performance of the lining system.

C. Manufacturer-certified copies of all test reports on each product used, including:
   1. Test results indicating the product conforms to and is suitable for its intended use per these specifications. Test reports shall be performed at the Licensed Applicator's expense and shall be carried out by an approved independent third-party testing laboratory or by a reputable independent testing body. As a minimum, the test reports should include properties listed in Paragraph 2.5 of this specification.

D. Manufacturer's Warranty on the product and a certificate showing compliance with applicable ASTM Standards.

E. Grout mix design and relevant constituent properties for the grout mixture.

F. Pipe joint assembly requirements.

1.6 SAFETY

A. The Contractor shall conform to all work safety requirements of pertinent regulatory agencies, and shall secure the site for the working conditions in compliance with the same. The Contractor shall erect such signs and other devices as are necessary for the safety of the work site.

B. The Contractor shall perform all of the work in accordance with applicable OSHA standards. Emphasis shall be placed upon the requirements for entering confined spaces and with the equipment being utilized for pipe renewal.

C. The Contractor shall submit a proposed Safety Plan to the Owner, prior to beginning any work, identifying all competent persons. The plan shall include a description of a daily safety program for the job site and all emergency procedures to be implemented in the event of a safety incident. All work shall be conducted in accordance with the Contractor's submitted Safety Plan.
   1. Safety plan shall include a notification of work flyer that will be distributed to all properties connected to the sewer that will be worked on. Notification shall include details of work, and dates for expected installation.

D. Compensation for all work required for the submittal of the Safety Plan shall be included in the various pipelining items contained in the bid proposal.

1.7 STORAGE OF MATERIALS

A. Deliver materials in original containers with seals unbroken and labels intact and free of moisture. Do not use materials that have been directly exposed to moisture or if there is visible damage to the packaging.

B. Project materials shall be inspected by the Contractor upon receipt and the Bill of Lading reviewed to confirm it properly documents amount(s) and type(s) of material(s) received, date and time of delivery as well as the shipping company delivering the material. Contractor shall log and make available for review Bill of Lading and material batch numbers upon receipt of the material(s). Receipt of material should also be noted in daily activity logs.

C. Materials may be stored offsite, such as in a yard, for a period prior to use on the project. Upon delivery to the project, Contractor shall designate a specific protected space at the project site for staging and mixing materials. Do not store kerosene, gasoline, or other flammable liquids in this space. Remove oily rags at the end of each day' s work. Regardless of storage location, materials used for rehabilitation are to be kept dry, protected from weather, and stored under cover within the temperature ranges recommended by the Manufacturer. Products are to be stored and handled according to their SDSs or appropriate classification. Damaged or unsuitable products shall be promptly.

1.8 AS-BUILT DRAWINGS/RECORDS

A. Digital copies of As-Built drawings/records and pre & post inspection videotapes shall be submitted to the Owner via a USB or email, by the Contractor, within 2 weeks of final acceptance of said work or as specified by the Owner. As-Built drawings/records will include the identification of the work completed by the Contractor and shall be prepared on one set of Contract Drawings/Records provided to the Contractor at the onset of the project.

1.9 WARRANTY

A. The materials used for the project shall be certified by the manufacturer for the specified purpose. The Contractor shall warrant the GRP Sliplining material and installation for a period of one (1) year and shall obtain and coordinate any applicable manufacturer warranties associated with the work. During the Contractor warranty period, any defect which may materially affect the integrity, strength, function and/or operation of the pipe, shall be repaired at the Contractor's expense in accordance with procedures as recommended by the manufacturer.

B. After a pipe section has been rehabilitated and for a period of time up to one (1) year following completion of the project, the Owner may inspect all or portions of the rehabilitated system. The specific locations will be selected at random by the Owner's inspector. If it is found that any of the GRP slipliner has developed abnormalities since the time of "Post Construction Television Inspection," the abnormalities shall be repaired and/or replaced in accordance with plans, specifications, and Owner standards.

C. On any work completed by the contractor that is defective and/or has been repaired, the contractor shall warrant this work for (1) year in addition to the warranty required by the contract.

1.10 GENERAL

A. All equipment and material shall be of a type that has been generally been in use for a period of five (5) years. Work performed with experimental equipment or material will not be permitted without prior written consent of the Owner.

PART 2 - PRODUCTS

2.1 GRP COMPOSITE LINER PRODUCT

A. Constituent materials and manufacturing of GRP segments shall conform to IGN 4-34-02 All materials used in the installation of system shall be equal to or exceed the manufacturer's standards.

B. Joints:
   1. Joints shall meet the requirements of IGN 4-34-02, Section 7.
   2. Joints shall be capable of withstanding internal and external hydrostatic pressures. Assume both internal and external water levels at ground surface for the purposes of joint hydrostatic integrity.

3. Longitudinal joints shall be rigid and assembled using a structural adhesive permitting full transference of tensile forces)

C. Appearance Criteria

1. Each GRP panel shall be reviewed relative to Table 3 of Appendix G of IGN 4-34-02 for confirmation that all external and internal surfaces are within final allowable defect limits.

D. GRP Liners shall meet the greater of the Performance Requirements noted in Table 1 of Section 8 of IGN No. 4-34-02 or the project specific design requirements. The manufacturer shall demonstrate type testing results to confirm conformance with both the IGN specification and production run testing. Type testing shall be required for confirmation of all short and long term properties in Table 1 (Section 9, Clauses 9.2, 9.3, 9.4, 9.5, and 9.6), while production run tests are also required to substantiate short term properties for short term flexural modulus and strength.

E. Approved Manufacturers:
1. Channeline International
2. Hobas Pipe
3. Or approved equal, must be approved prior to bidding. Anything submitted after bidding will be rejected.

2.2 ANNULAR GROUT

A. Minimum parameters and mechanical properties as recommended by the pipe manufacturer.

B. The proposed annular grout shall have material properties that permit grouting to occur without voiding within the annulus.

C. Grouts shall conform to the requirements of ACI 229.

D. Grout parameters and mechanical properties shall be provided through demonstration testing in accordance with 1.5.

2.3 TRANSITIONS

A. Transitions shall be completed using a polymer concrete grout compatible with the liner and grouting materials.

B. Approved products:
1. Sikatop 123 as manufactured by Sika USA Inc.
2. Or approved equal.

PART 3 - EXECUTION

3.1 PREPARATORY PROCEDURES

A. The Contractor shall notify all homeowners on the manhole section to be lined forty-eight (48) hours in advance of the work to be done. The Contractor shall inform the homeowner of precautions necessary to prevent backup of sewage into the house. Notification shall include language that the work may extend beyond normal permitted working hours, if necessary to reinstate service laterals

B. The following preparatory procedures shall be adhered to unless otherwise approved by the Engineer:

1. Cleaning of Sewer Line: Before ordering liner materials for the project, the Contractor shall remove all internal debris from the pipeline that will interfere with the installation and the final product delivery of the GRP Sliplining materials, as required in these specifications, and shall accurately measure and document the exact size of the existing pipeline to be rehabilitated. Solid debris and deposits shall be removed from the system and disposed of properly by the Contractor. Moving material from manhole section to manhole section shall not be allowed. All debris, cleaning residue or other material loosened during cleaning shall be removed from the pipe. Material shall not be permitted to enter downstream channels. As applicable, the contractor shall either plug or install a flow bypass pumping system to properly clean the pipelines.

2. The Contractor shall provide equipment and methods suitable for the size, configuration, material, and condition of the pipe being cleaned. Equipment shall be capable of adequately cleaning and preparing the full host pipe surface for installation and grouting of the GRP Slip lining system. The Contractor shall be responsible for selecting equipment appropriate for the work and modifying cleaning methods as necessary to achieve the specified results without damaging the host pipe. The repair of any damage caused by the cleaning equipment shall be the responsibility of the Contractor. If the Contractor determines that continued cleaning may damage a severely deteriorated portion of the host pipe, the Contractor shall stop cleaning in the affected area and notify the Engineer. Cleaning shall not resume in the affected area without approval from the Engineer. The Owner will designate a site for the disposal of all debris removed from the Owner's sewer system as a direct result of the cleaning operation. Fees associated with disposal of all debris shall be included in the applicable GRP Slip Lining bid item.

3. Cleaning and surface preparation shall extend over the full interior surface to receive GRP Slip Lining, including the crown, sidewalls, corrugation crests and valleys, seams, joints, fasteners, and interfaces with the existing paved concrete invert. The existing paved concrete invert shall remain in place and shall not be removed or reconstructed as part of the Slip Lining Work. Loose, delaminated, or deteriorated portions of the paved concrete invert shall be removed only where approved by the Engineer. Cleaning operations shall not damage sound portions of the paved concrete invert designated to remain.

4. Inspection of Sewer Line: In accordance with the Television Inspection requirements, the Contractor shall televise the pipe with PACP certified personnel specially trained in locating breaks, obstacles, and service connections. The interior of the sewer line shall be carefully inspected to verify the location and extent of any structural failures. The location of any conditions which may prevent proper installation of the GRP slipliner system shall be noted so that such conditions can be corrected. The Contractor shall provide the Owner and Engineer with digital copies of pre-cleaning and post-cleaning video and suitable log, and/or in digital format, for review prior to installation of the GRP Sliplining and for later reference by the Owner.

5. Connections: While televising the mainline sewer, the Contractor shall accurately measure and record the locations and positions of service connections using a fiberglass or other tape approved by the Engineer. Additionally, the Contractor shall utilize the pan and tilt capabilities of the televising equipment to determine which connections are live (active) and which are not in use. If required by the Contract documents, each connection will be dye tested to determine whether the connection is live or abandoned.

6. Bypassing Sewage: The Contractor shall provide for the flow of existing mainline and service connection effluent around the section or sections of pipe designated for GRP Sliplining installation. With most small diameter pipelines, particularly on terminal sewers, plugging will be adequate but must be monitored on a regular basis to prevent backup of sewage into adjacent homes. Service connection effluent may be plugged only after proper notification to the affected residence and may not remain plugged overnight. Installation of the liner shall not begin until the Contractor has installed the required plugs or a sewage bypass system and all pumping facilities have been installed and tested under full operating conditions including the bypass of mainline and side sewer flows. Once the installation has begun, existing flows shall be maintained, until the resin/tube composite is fully cured, cooled down, full televised and the GRP Sliplining ends finished. The Contractor shall coordinate sewer bypass and flow interruptions with the Owner at least 14 days in advance and with the property owners and businesses at least 1 business day in advance. The pump and bypass lines shall be of adequate capacity and size to handle peak flows. The Contractor shall submit a detail of the bypass plan and design to the Owner before proceeding with any GRP Sliplining installation. Compensation for bypass pumping and all associated plans and approvals shall be at the price bid in the Proposal. All bypassing of flow shall be performed as specified under 330130.03 - SEWER FLOW CONTROL

7. Line Obstructions: It shall be the responsibility of the Contractor to clear the line of obstructions such as solids, dropped joints, protruding service connections, or collapsed pipe that will prevent installation. If the obstruction(s) could have been removed by bucket machines or by using conventional cleaning methods, no compensation will be granted.

    a. Internal repairs are protruding service connections, dropped portions of pipe which can be removed or pushed back in place, and other obstructions which cannot be cleared using conventional cleaning methods, but which can be cleared from within the pipe. Such internal repairs shall be approved in writing by the Engineer prior to the commencement of the work and shall be included in the 84 Inch Slip Lining pay item.

b. Point repairs are obstructions that cannot be removed by either conventional sewer cleaning equipment or by internal equipment. The Contractor shall make an excavation to expose and remove or repair the obstruction. Such excavation shall be approved in writing by the Engineer prior to the commencement of the work, shall be performed as specified under Point Repairs, and shall be included in the 84 Inch Slip Lining pay item.

c. Patching shall be performed at locations where holes or soil are visible within the pipe, but the pipe is otherwise in a condition that it is able to have the GRP Sliplining system applied. The Contractor shall apply patching material that is able to properly fill any holes and voids, be smoothened to match the existing pipe surface once cured, and properly adhere to the GRP Sliplining. Such work shall be approved in writing by the Engineer prior to the commencement of the work and shall be specified under Patching or Joint Repair, and shall be included in the 84 Inch Slip Lining pay item.

8. Pre-Insertion Television Inspection: The Contractor shall televise and record the sewer pipe immediately before installing GRP Sliplining. This televising is to assure that the pipe is clean and existing pipe conditions are acceptable for lining. Should additional cleaning be required, it shall be provided at no additional cost to the Owner. The cost of this televising shall be included in the cost of GRP Sliplining.

3.2 INSTALLATION PROCEDURES

A. Segmental GRP Installation

1. Assemble full segmental GRP in accordance with approved installation protocol submission. Multi segmental GRP panels may only be used in areas approved by the Engineer.
2. Profile of alignment shall be offset to invert of pipe to as great a degree as possible leaving largest annulus at crown.
3. Securely fasten panels in-place to facilitate construction and sufficiently to assure that panels are not displaced during grouting operations. Ensure that the temporary support system minimizes point loads and other features that may cause damage to GRP liner during grouting operations.
4. The contractor shall take every effort to prevent the accumulation of debris and sewage between the liner and the host pipe.

B. Annulus Grouting

1. Carry out annulus grouting in accordance with approved grouting protocol submission. Monitor the liner during grouting operations to ensure short-term deflections do not exceed the allowable maximums and that the liner is not displaced during grouting operations. No grout shall be placed until service connections have been restored.
2. The Contractor is responsible for confirming that annulus is fully grouted.

3. Temporary wooden plugs may be used to plug grouting ports during grouting. Upon completion, the holes shall be repaired using a resin-rich repair product such as an epoxy based repair system that is compatible with the liner system and specifically designed for the nature, size and thickness of the patch being repaired to form a smooth watertight patch flush with liner.

4. General grouting requirements:

   a. Estimate the volume of grout required, including an overfill allowance based on grout properties, sewer geometry and condition, and previous experience with grout mixture;
   b. By-pass or pump through any sewer flows that occur during grouting operations;
   c. Minimize infiltration (or its effects) to the extent required to successfully complete the grouting operations;
   d. Inject from the downstream end of the renovated section

3.4 POST CONSTRUCTION DESIGN REVIEW FOR TOTAL PERFORMANCE

A. The Engineer will perform a post-construction design review to confirm that the completed liner meets the design objectives relative to structural requirements prior to Total Performance. The design review will utilize all reported Quality Control testing records provided in accordance with 1.4.D.

B. The Engineer will advise of any discrepancies between the constructed GRP and the design requirements.

C. Defects in GRP liners will be reviewed on a case-by-case basis by the Engineer. The Engineer will consult with the Contractor and taking into account the condition of the host pipe prior to lining, the GRP installation conditions, and the long-term use of the sewer to assess the structural and performance ramifications of the defects.

D. The Contractor shall:

   1. Perform necessary remedial measures to confirm that a liner deemed to be structurally deficient will comply with the 100-year design life requirement such as determination of a more representative groundwater elevation locally through monitoring, undertake additional measurements to confirm install conditions, and supplemental sampling and strength testing.

   2. Repair sections of GRP removed for supplemental by insertion of extra GRP panel material using an acceptable structural adhesive or repairing with a resin-rich repair product such as an epoxy-based repair system that is compatible with the liner system and specifically designed for the nature, size and thickness of the patch being repaired to form a smooth watertight patch flush with liner.

   3. Install a supplemental liner to structurally enhance the installed GRP liner if supplemental testing fails to confirm the GRP will meet the 100-year design life requirement.

   4. Review remedial action with the Engineer prior to implementation.

5. The Contractor shall perform further testing, monitoring, calculations, and install structural enhancements at their own cost.

END OF SECTION 330130.73

SECTION 6
STANDARD SPECIFICATIONS

STANDARD SPECIFICATIONS

1. The "Construction and Material Specifications" of the State of Ohio Department of Transportation (ODOT), 2023 edition, current ODOT supplemental specifications, and current ODOT standard drawings shall govern work and materials which are not specified or modified herein or on the project Contract Drawings. All references to "the Department" shall be changed to "the Owner or his Representative." The project Contract Drawings and Specifications, in the event of a discrepancy, shall supersede the ODOT Specifications.

   The absence of an “As Per Plan” designation on some item descriptions in the proposal for which there are clear and controlling plan notes, specifications, or other requirements does not relieve the Contractor of the responsibility to read, bid and construct those particular items in accordance with the governing plan notes, specifications, or other requirements and the Contractor shall have no basis of claim based upon an “order of precedence”.

   ODOT 104.02 D., 611.04, 611.12, and 611.13 shall not apply to this project.

SECTION 7
SPECIFIC PROJECT REQUIREMENTS

SPECIFIC PROJECT REQUIREMENTS

1 - CONTACT DURING BIDDING

1.1 All questions during bidding should be addressed to Tim McLauhlin, P.E., at Verdantas LLC, 8150 Sterling Court, Mentor, Ohio 44060, at tmclaughlin@verdantas.com

2 - PERIODIC PAYMENTS

2.1 This project is expected to be funded in whole or in part by the OPWC. The Contractor shall comply with all requirements of this program. The periodic payments to the Contractor may be made in whole or in part through the OWNER and/or OPWC. In paragraph 14.02 C.1 of the General Conditions change "ten days" to "sixty days."

3 - GEOTECHNICAL REPORT

3.1 A Geotechnical Exploration Report dated October 9, 2026 by Wertz Geotechnical Engineering was relied upon by the Engineer in the preparation of drawings and specifications. Copies of the report are provided for your use per Article 4 of the EJCDC General Conditions.

4 - SEWER TELEVISING REPORT

4.1 A Sewer Televising Reports were relied upon by the Engineer in the preparation of drawings and specifications. Copies of the report are provided for your use per Article 4 of the EJCDC General Conditions and may be examined on the internet at https://bids.verdantas.com . Copies of the videos may be requested from the person listed in Item 1 above.

5 - CORRECTION PERIOD

5.1 The Correction Period in Section 13.07 of the General Conditions shall be changed from a one (1) year to a two (2) year period.

6 - INSURANCE

6.1 Section SC-5.04(D) of the Supplementary Conditions shall be deleted and no "all risk builders risk" or "installation floater" insurance need be purchased by the Contractor.

6.2 See the following Bid Set Sections for Insurance Requirements:

A. Section 1, Instructions to Bidders, Part 10 Insurance

B. Section 3, General Conditions, Article 5 Bonds and Insurance (EJCDC) or Article 11 Insurance and Bonds (AIA), whichever is used in the Bid Set

C. Section 4, Supplemental Conditions

7 - WORKING HOURS

7.1 No work shall be performed between the hours of 7:30 p.m. and 7:30 a.m. nor on Saturday, Sunday, or legal Holidays, without written permission of the Owner.

8 - PROJECT COMPLETION

8.1 All work including restoration and clean-up shall be completed no later than the contract completion date. Failure to complete all work within the allotted time will result in assessment of liquidated damages. Upon completion of all work and written notification of same by the Contractor, the Engineer and Owner will compile a punch list. The punch list will be sent to the Contractor. All punch list work shall be completed to the satisfaction of the Engineer and the Owner within 14 days after receipt of the punch list. Failure to complete the punch list work within the allotted time will result in assessment of liquidated damages.

9 - SITE ACCESS

9.1 Access to the site for field investigation of existing conditions must be scheduled in advance with by contacting Tim McLauhlin, P.E., at Verdantas, LLC, 8150 Sterling Court, Mentor, Ohio 44060, at tmclaughlin@verdantas.com

10 - ENFORCEMENT OF CONTRACTS COSTS

10.1 The Contractor shall reimburse the City of Willowick for any costs it may incur due to the Contractor's negligence or claims made by the Contractor which are ultimately not paid to the Contractor. Said costs include, but are not limited to: engineers, project managers, project representatives, attorney fees, arbitration and/or court costs.

11 - NOTICE TO RESIDENTS

11.1 The Contractor shall pay for and include in his bid for other items, all necessary costs for notifying each Resident by a **Form Letter** prior to each lateral replacement.

11.2 A copy of the **Form Letter** shall be forwarded to the City's Director of Public Service for his approval prior to the letters being distributed to Residents.

11.3 No work shall be performed by the Contractor until **Form Letters** have been distributed to each Resident three (3) days prior to the anticipated start of construction at each location.

11.4 Failure to properly notify affected Residents will be sufficient cause to prohibit the Contractor from working until proper corrective action is taken at no penalty to the City.

END OF SECTION

SECTION 8
PREVAILING WAGE RATES

PREVAILING WAGES

The Contractor agrees that each individual employed by the Contractor or any Subcontractor and engaged in work on the project under this Contract shall be paid the prevailing wage established by the Ohio Department of Commerce Division of Industrial Compliance (https://com.ohio.gov/divisions-and-programs/industrial-compliance/wage-and-hour/guides-and-resources/view-prevailing-wage-rates). This shall occur regardless of any contractual relationship which may be said to exist between the Contractor or any Subcontractor and such individual.

The Prevailing Wage Determination Schedule for this project is attached. If the Contractor needs a wage determination for any trade not included herein, he shall contact the Owner's Prevailing Wage Coordinator.

Prevailing Wage Orientation Meeting

After award of contract the prime contractor and all approved subcontractors shall participate in a prevailing wage orientation meeting.

Prevailing Wage No Work Performed Report

The Prime Contractor and all Subcontractors shall submit Prevailing Wage Reports weekly from the first week of work until the final week of work. This includes weeks when no work is performed. Contractors shall submit a Prevailing Wage Report or the included Non-Performing Week/No Work Report. All prevailing wage reports submitted must be signed.

Prevailing Wage Determination Cover Letter

THE FOLLOWING PAGES ARE PREVAILING RATES OF WAGES ON PUBLIC IMPROVEMENTS FAIRLY ESTIMATED TO BE MORE THAN THE AMOUNT IN O.R.C. SEC. 4115.03 (b) (1) or (2), AS APPLICABLE.

Section 4115.05 provides, in part: “Where contracts are not awarded or construction undertaken within ninety days from the date of the establishment of the prevailing wages, there shall be a redetermination of the prevailing rate of wages before the contract is awarded.” The expiration date of this wage schedule is listed above for your convenience only. This wage determination is not intended as a blanket determination to be used for all projects during this period without prior approval of this Department.

Section 4115.04, Ohio Revised Code provides, in part: “Such schedule of wages shall be attached to and made a part of the specifications for the work, and shall be printed on the bidding blanks where the work is done by contract...”

The contract between the letting authority and the successful bidder shall contain a statement requiring that mechanics and laborers be paid a prevailing rate of wage as required in Section 4115.06, Ohio Revised Code.

The contractor or subcontractor is required to file with the contracting public authority upon completion of the project and prior to final payment therefore an affidavit stating that he has fully complied with Chapter 4115 of the Ohio Revised Code.

The wage rates contained in this schedule are the “Prevailing Wages” as defined by Section 4115.03, Ohio Revised Code (the basic hourly rates plus certain fringe benefits). These rates and fringes shall be a minimum to be paid under a contract regulated by Chapter 4115 of the Ohio Revised Code by contractors and subcontractors. The prevailing wage rates contained in this schedule include the effective dates and wage rates currently on file. In cases where future effective dates are not included in this schedule, modifications to the wage schedule will be furnished to the Prevailing Wage Coordinator appointed by the public authority as soon as prevailing wage rates increases are received by this office.

“There shall be posted in a prominent and accessible place on the site of work a legible statement of the Schedule of Wage Rates specified in the contract to the various classifications of laborers, workmen, and mechanics employed, said statement to remain posted during the life of such contract.” Section 4115.07, Ohio Revised Code.

Apprentices will be permitted to work only under a bona fide apprenticeship program if such program exists and if such program is registered with the Ohio Apprenticeship Council.

Section 4115.071 provides that no later than ten days before the first payment of wages is due to any employee of any contractor or subcontractor working on a contract regulated by Chapter 4115, Ohio Revised Code, the contracting public authority shall appoint one of his own employees to act as the prevailing wage coordinator for said contract. The duties of the prevailing wage coordinator are outlined in Section 4115.071 of the Ohio Revised Code.

Section 4115.05 provides for an escalator in the prevailing wage rate. Each time a new rate is established, that rate is required to be paid on all ongoing public improvement projects.

A further requirement of Section 4115.05 of the Ohio Revised Code is: “On the occasion of the first pay date under a contract, the contractor shall furnish each employee not covered by a collective bargaining agreement or understanding between employers and bona fide organizations of Labor with individual written notification of the job classification to which the employee is assigned, the prevailing wage determined to be applicable to that classification, separated into the hourly rate of pay and the fringe payments, and the identity of the prevailing wage Coordinator appointed by the public authority. The contractor or subcontractor shall furnish the same notification to each affected employee every time the job classification of the employee is changed.”

Work performed in connection with the installation of modular furniture may be subject to prevailing wage.

THIS PACKET IS NOT TO BE SEPARATED BUT IS TO REMAIN COMPLETE AS IT IS SUBMITTED TO YOU. (Reference guidelines and forms are included in this packet to be helpful in the compliance of the Prevailing Wage law.)

PREVAILING WAGE THRESHOLD LEVELS
IMPORTANT NOTICE

Before advertising for bids, contracting, or undertaking construction with its own forces, to construct a public improvement, the Public Authority shall have the Ohio Department of Commerce-Division of Industrial Compliance, Bureau of Wage and Hour Administration determine the prevailing rates of wages for workers employed on the public improvement. The wage determination must be included in the project specifications and printed on the bidding blanks where work is done by contract.

"New" construction threshold for Building Construction:	**$250,000**

"Reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting" threshold level for Building Construction:	**$75,000**

As of January 1, 2026:

"New" construction that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction threshold level has been adjusted to:	**$101,201**

"Reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting" that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction threshold level has been adjusted to:	**$30,320**

A) Thresholds are to be adjusted biennially by the Director of the Ohio Department of Commerce.
B) Biennial adjustments to threshold levels are made according to the Building Cost for Skilled Labor Index published by McGraw-Hill's Engineering News-Record, but may not increase or decrease more than 3% for any year.

If there are questions concerning this notification, please contact:
Bureau of Wage and Hour Administration
6606 Tussing Road, PO Box 4009
Reynoldsburg, Ohio 43068-9009
Phone: 614-644-2239
Fax: 614-728-8639
www.com.ohio.gov

Help us improve our website! Take a brief 1–2 minute survey to share your experience using the Ohio Department of Commerce website.

Prevailing Wage Contractor Responsibilities

This is a summary of prevailing wage contractors' responsibilities. For more detailed information please refer to Chapter 4115 of the Ohio Revised Code

Collapse All Sections

General Information

Ohio's prevailing wage laws apply to all public improvements financed in whole or in part by public funds when the total overall project cost is fairly estimated to be more than $250,000 for new construction or $75,000 for reconstruction, enlargement, alteration, repair, remodeling, renovation, or

painting.

Ohio's prevailing wage laws apply to all public improvements financed in whole or in part by public funds when the total overall project cost is fairly estimated to be more than $98,974 for new construction that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction or $29,653 for reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting of a public improvement that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction.

a. Thresholds are to be adjusted biennially by the Administrator of Ohio Department of Commerce, Division of Industrial Compliance and Labor, Bureau of Wage and Hour Administration

b. Biennial adjustments to threshold levels are made according to the Price Deflator for Construction Index, United States Department of Commerce, Bureau of the Census*, but may not increase or decrease more than 3% for any year

Penalties for violation

Violators are to be assessed the wages owed, plus a penalty of 100% of the wages owed.

Intentional Violations

If an intentional violation is determined to have occurred, the contractor is prohibited from contracting directly or indirectly with any public authority for the construction of a public improvement. Intentional violation means "a willful, knowing, or deliberate disregard for any provision" of the prevailing wage law and includes but is not limited to the following actions:

- Intentional failure to submit payroll reports as required, or knowingly submitting false or erroneous reports.
- Intentional misclassification of employees for the purpose of reducing wages.
- Intentional misclassification of employees as independent contractors or as apprentices.
- Intentional failure to pay the prevailing wage.
- Intentional failure to comply with the allowable ratio of apprentices to skilled workers as required by the regulations established by Ohio Department of Commerce, Division of Industrial Compliance and Labor, Bureau of Wage and Hour Administration.

- Intentionally employing an officer, of a contractor or subcontractor, that is known to be prohibited from contracting, directly or indirectly, with a public authority.

Responsibilities

A. Pay the prevailing rate of wages as shown in the wage rate schedules issued by the Ohio Department of Commerce, Division of Industrial Compliance and Labor, Bureau of Wage and Hour Administration, for the classification of work being performed.

1. Wage rate schedules include all modifications, corrections, escalations, or reductions to wage rates issued for the project.
2. Overtime must be paid at time and one-half the employee's base hourly rate. Fringe benefits are paid at straight time rate for all hours including overtime.
3. Prevailing wages must be paid in full without any deduction for food, lodging, transportation, use of tools, etc.; unless, the employee has voluntarily consented to these deductions in writing. The public authority and the Director of Ohio Department of Commerce, Division of Industrial Compliance and Labor, Bureau of Wage and Hour Administration - must approve these deductions as fair and reasonable. Consent and approval must be obtained before starting the project.

B. Use of Apprentices and Helpers cannot exceed the ratios permitted in the wage rate schedules.

1. Apprentices must be registered with the U.S. Department of Labor Bureau of Apprenticeship and Training.
2. Contractors must provide the Prevailing Wage Coordinator a copy of the Apprenticeship Agreement for each apprentice on the project.

C. Keep full and accurate payroll records available for inspection by any authorized representative of the Ohio Department of Commerce, Division of Industrial Compliance, and Labor, Bureau of Wage and Hour Administration or the contracting public authority, including the Prevailing Wage Coordinator. Records should include but are not limited to:

1. Time cards, time sheets, daily work records, etc.
2. Payroll ledger\journals and canceled checks\check register.
3. Fringe benefit records must include program, address, account number, & canceled checks.

4. Records made in connection with the public improvement must not be removed from the State for one year following the completion of the project.

5. Out-of-State Corporations must submit to the Ohio Secretary of State the full name and address of their Statutory Agent in Ohio.

D. Prevailing Wage Rate Schedule must be posted on the job site where it is accessible to all employees.

E. Prior to submitting the initial payroll report, supply the Prevailing Wage Coordinator with your project dates to schedule reporting of your payrolls.

F. Supply the Prevailing Wage Coordinator a list of all subcontractors including the name, address, and telephone number for each.

1. Contractors are responsible for their subcontractors' compliance with requirements of Chapter 4115 of the Ohio Revised Code.

G. Before employees start work on the project, supply them with written notification of their job classification, prevailing wage rate, fringe benefit amounts, and the name of the Prevailing Wage Coordinator for the project. A copy of the completed signed notification should be submitted to Prevailing Wage Coordinator.

H. Supply all subcontractors with the Prevailing Wage Rates and changes.

I. Submit certified payrolls within two (2) weeks after the initial pay period. Payrolls must include the following information:

1. Employees' names, addresses, and social security numbers.

a. Corporate officers/owners/partners and any salaried personnel who do physical work on the project are considered employees. All rate and reporting requirements are applicable to these individuals.

2. Employees' work classification.

a. Be specific about the laborers and/or operators (Group)

b. For all apprentices, show level/year and percent of journeyman's rate

3. Hours worked on the project for each employee.

a. The number of hours worked in each day and the total number of hours worked each week.

4. Hourly rate for each employee.

a. The minimum rate paid must be the wage rate for the appropriate classification. The Department's Wage Rate Schedule sets this rate.

b. All overtime worked is to be paid at time and one-half for all hours worked more than forty (40) per week.

5. Where fringes are paid into a bona fide plan instead of cash, list each benefit and amount per hour paid to program for each employee.

a. When the amount contributed to the fringe benefit plan and the total number of hours worked by the employee on all projects for the year are documented, the hourly amount is calculated by dividing the total contribution of the employer by the total number of hours worked by the employee.

b. When the amount contributed to the fringe benefit is documented but not the total hours worked, the hourly amount is calculated by dividing the total yearly contribution by 2080.

6. Gross amount earned on all projects during the pay period.

7. Total deductions from employee's wages.

8. Net amount paid.

J. The reports shall be certified by the contractor, subcontractor, or duly appointed agent stating that the payroll is correct and complete; and that the wage rates shown are not less than those required by the O.R.C. 4115.

K. Provide a Final Affidavit to the Prevailing Wage Coordinator upon the completion of the project.

INSTRUCTIONS FOR PREPARING CERTIFIED PAYROLL REPORTS

General:

Contractors and subcontractors are required by law to submit certified payroll reports for work on projects covered by Ohio's Prevailing Wage Law. This form meets the reporting requirements established by Ohio Revised Code Chapter 4115. The use of this form is not mandatory; employers may submit their own forms if all of the required information is included. This form may be reproduced, or additional copies obtained from:

Ohio Department of Commerce
Division of Industrial Compliance
Bureau of Wage and Hour Administration
6606 Tussing Road, P.O. Box 4009
Reynoldsburg, Ohio 43068-9009
614-644-2239
www.com.ohio.gov

Certified Payroll Heading:

Employer name and address: Company's full name and address…Indicate if the company is a subcontractor.
Subcontractor: Check and list the name of the General Contractor or Prime.
Project: Name and location of the project, including county.
Contracting Public Authority: Name and address of the contracting public authority… (Owner of the project).
Week Ending: Month, day, and year for last day of reporting period.
Payroll #: Indicates first, second, third, etc. payroll filed by the company for the project.
Page indicator: number of pages included in the report.
Project Number: Determined by the public authority…If there is no number leave blank.

Payroll Information by column:

1. Employee Name, Address and Social Security number: This information must be provided for all employees that perform physical labor on the project. The Social Security number is required; the last four digits may be permitted by the public authority. Corporate officers, partners, and salaried employees are considered employees and must be paid the prevailing rate. Individual sole proprietors do not have to pay themselves prevailing rate but must report their hours on the project.

2. Work Class: List classification of work performed by employee. If unsure of work classification, consult the Ohio Department of Commerce-Division of Industrial Compliance & Labor-Bureau of Wage and Hour Administration. Employees working more than one classification should have separate line entries for each classification. Indicate what year/level for Apprentices. Be specific when using laborer and operator classifications; for example, Backhoe Operator or Asphalt Laborer or by "Group".

3. Hours Worked, Day & Date: In the first row of column 3, enter days of the company's pay period for example; M T W TH F S S. The second row is for the date that corresponds with each day for the pay period. In the employee information section, enter the number of hours worked on the prevailing wage project and which day the hours were worked. Separate rows are labeled for (ST) straight time hours and (OT) overtime hours. All hours worked after 40, must be paid at the appropriate overtime rate.

4. Project Total Hours: Total the hours entered for pay period.

5. Base Rate: Enter actual rate per hour paid to the employee. The overtime hourly rate is time and one-half the base rate listed in the prevailing wage schedule plus fringe benefits at straight time rate. The prevailing wage schedule lists the base rate plus fringe benefit amounts. These amounts added together equal the total prevailing wage rate. Employers must pay this total amount in one of three ways.

1) Total rate may be paid in entirety in the base rate to the employee; in which case, the cash designation will be checked for fringe benefits.
2) Total rate may be paid as listed in prevailing wage rate schedule with total fringe amounts paid approved plans.
3) Total rate may be paid with a combination of base rate and fringe payments to approved plans in amounts other than those listed in schedule.

6. Project Gross: Enter total gross wages earned on the project for straight time and overtime. Project hours "X" base rate should equal project gross.

7. Fringes: If fringe benefits are paid in the hourly base rate, indicate this by marking the **Cash** space. If fringe benefits are paid to approved plans as listed in the prevailing wage rate schedule, mark the space **Approved Plans**. If fringe benefits are paid partially in the base rate and partially to approved plans, mark the space **Cash & Approved Plans**. List the hourly amount paid to approved plans for each fringe. If payments are not made on a per hour basis, ***calculate the hourly fringe credit by dividing the yearly employer contribution by*** the lesser of: hours actually worked in the year (these must be documented) or ***2080***. Fringe benefits include**: Employer's share** of health insurance, life insurance, retirement plan, bonus/profit sharing, sick pay, holiday pay, personal leave, vacation, and education/training programs. If unsure of a possible fringe benefit, contact the Ohio Department of Commerce-Division of Industrial Compliance & Labor-Bureau of Wage and Hour Administration.

8. Total Hours All Jobs: Total all hours worked during the pay period including non-prevailing wage jobs.

9. Total Gross All Jobs: Gross amount earned in the pay period for all hours worked.

10. Self-explanatory.

11. Self-explanatory.

Certified Payroll Report

Report for:

Company:[1] _____

Address: _____

City, State, Zip _____

Phone No: _____

☐ Check if Subcontractor[1]

If Sub, GC/Prime Contractor Name: _____

Public Authority (Owner): _____

Contract No: _____

Project Name & Location: _____

Payroll No: _____

Week Ending: _____

Sheet:[2] _____ of _____

1. Employee Name, Address, & SS# (Last 4 digits if permitted)	2.Work Class[3]	3.Prevailing Wage Project Hours Worked - Day & Date							4.Total Hours	5.Base Rate	6.Project Gross	Fringes: ☐ Cash ☐ Approved Plans ☐ Cash & Approved Plans						Weekly Payroll Amount			
												Fringe Rate Your Company Pays Per Hour						8.Total Hrs for all Jobs	9. Total Gross on All Jobs	10. Total Deductions	11. Net Pay on All Jobs
												H&W	Pens	Vac	Hol	Other	Total				
	OT																				
	ST																				
	OT																				
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1) By signing below, I certify that: (1) I pay, or supervise the payment of the employees shown above; (2) during the pay period reported on this form, all hours worked on this project have been paid at the appropriate prevailing wage rate for the class of work done; (3) the fringe benefits have been paid as indicated above; (4) no rebates or deductions have been or will be made, directly or indirectly from the total wages earned, other than permissable deductions as defined in ORC Chapter 4115; and (5) apprentices are registered with the U.S. Dept. of Labor, Bureau of Apprenticeship and Training. I understand that the willful falsification of any of the above statements may subject the Contractor or Subcontractor to civil or criminal prosecution.

Type or Print Name and Title _____ Signature _____ Date _____

11/14 jc

[2]Attach additional sheets as necessary. [3]Type in continuous line, text will wrap.

Prevailing Wage Notification to Employee

4115.05: …the contractor or subcontractor shall furnish each employee **NOT covered by a collective bargaining agreement** written notification of the job classification to which the employee is assigned, the prevailing wage determined to be applicable to that classification, separated into the hourly rate of pay and the fringe payments, and the identity of the prevailing wage coordinator appointed by the public authority. The contractor or subcontractor shall furnish the same notification to each affected employee every time the job classification of the employee is changed.

Project Name:	Project Number:
Contractor:	
Project Location:	

Prevailing Wage Coordinator	Employee
Public Authority:	Name:
Name of PWC:	Street:
Street:	City:
City:	State/Zip:
State:	Phone Number:
Zip:	Email:
Phone:	Last 4 Digits of SS#:

You will be performing work on this project that falls under these classifications. You will be paid the appropriate rate for the type of work you are performing.

Classification:	Prevailing Wage Rate Total Package:	Minus your fringe benefits*:	Your hourly base rate and overtime:
			/
			/
			/
			/
			/
			/

Hourly fringe benefits paid on your behalf by this company (Yearly amount the **company pays** divided by 2080):

Fringe	Amount	Fringe	Amount
Health Insurance		Vacation	
Life Pension		Holiday	
Pension		Sick Pay	
Other (Specify):		Training	
Other (Specify):		Total Hourly Fringes *	

Contractor's Signature:	Date:
Employee's Signature:	Date:

Certified payroll Report for Non-Performing Week Date

Contractor:

Subcontractor:

For week beginning on:

For week ending on:

Payroll Number:

Project Number:

Project location:

CERTIFICATION FOR NON-PERFORMING WEEK

I, *Name of Company* the undersigned, am the Prevailing Wage Coordinator with the authority to act for and on behalf of *Company Name* certify under penalty of perjury that no work was performed for the week ending on *Date*. I herein certify under penalty of perjury that all of the above is true and correct as submitted.

Signature

Name, Title, phone number, email address

Select a County: Lake

DOWNLOAD (PDF)

Union	Classification	Wage Rate Type	Effective Date	Posted Date	
Asbestos Local 207	Asbestos Worker	Commercial	07/08/2026	07/08/2026	View
Asbestos Local 3 Heat & Frost Insulators	Asbestos Worker	Commercial	08/12/2026	08/12/2026	View
Boilermaker Local 744	Boilermaker	Commercial	06/05/2024	06/05/2024	View
Bricklayer Local 23 (Cleveland Marble Finisher)	Bricklayer	Commercial	05/01/2024	05/01/2024	View
Bricklayer Local 23 (Cleveland Marble Mason)	Bricklayer	Commercial	05/01/2024	05/01/2024	View
Bricklayer Local 23 (Cleveland Marble, Terrazzo, & Mosiac)	Bricklayer	Commercial	05/01/2024	05/01/2024	View
Bricklayer Local 23 (Cleveland Terrazzo Finisher)	Bricklayer	Commercial	05/01/2024	05/01/2024	View
Bricklayer Local 23 (Cleveland Zone 1 Tile Finisher)	Bricklayer	Commercial	05/06/2026	05/06/2026	View
Bricklayer Local 23 (Cleveland Zone 1 Tile Layer)	Bricklayer	Commercial	05/06/2026	05/06/2026	View
Bricklayer Local 23 (Mentor)	Bricklayer	Commercial	05/06/2026	05/06/2026	View
Bricklayer Local 23 Heavy Hwy (A)	Bricklayer	Commercial	06/10/2026	06/10/2026	View
Bricklayer Local 23 Heavy Hwy (B)	Bricklayer	Commercial	06/10/2026	06/10/2026	View
Carpenter Commercial Zone NEO 1A	Carpenter	Commercial	06/24/2026	06/24/2026	View
Carpenter Floorlayer Zone NEO 1A	Carpenter	Commercial	07/01/2026	07/01/2026	View
Carpenter Hev Hwy Zone NHH C1-B	Carpenter	Commercial	07/01/2026	07/01/2026	View
Carpenter Insulation Zone NEO 1A	Carpenter	Commercial	07/15/2026	07/15/2026	View
Carpenter Millwright NE Zone M1-A	Carpenter	Commercial	07/01/2026	07/01/2026	View
Carpenter Pile Driver Hev Hwy Zone NHH P2-B	Carpenter	Commercial	07/01/2026	07/01/2026	View
Cement Mason Local 404	Cement Mason	Commercial	08/19/2026	08/19/2026	View
Cement Mason Local 404 Hev Hwy	Cement Mason	Commercial	05/01/2026	04/29/2026	View
Electrical Local 673 Inside	Electrical	Commercial	03/04/2026	03/04/2026	View

Union ↑	Classification	Wage Rate Type	Effective Date	Posted Date	
Electrical Local 673 Inside Lt Commercial Northern	Electrical	Commercial	03/04/2026	03/04/2026	View
Electrical Local 673 Lightning Rod	Electrical	Commercial	11/10/2022	11/10/2022	View
Electrical Local 673 Voice Data Video	Electrical	Commercial	06/14/2023	06/14/2023	View
Electrical Local 71 Cleveland Commercial Projects	Electrical	Commercial	01/21/2026	01/21/2026	View
Electrical Local 71 Cleveland Municipal Power & Transit	Electrical	Commercial	01/21/2026	01/21/2026	View
Electrical Local 71 DOT Traffic Signal Highway Lighting Cleveland	Electrical	Commercial	01/21/2026	01/21/2026	View
Electrical Local 71 High Tension Pipe Type Cable	Electrical	Commercial	01/07/2026	01/07/2026	View
Electrical Local 71 Outside Utility Power	Electrical	Commercial	01/07/2026	01/07/2026	View
Electrical Local 71 Underground Residential Distribution	Electrical	Commercial	01/07/2026	01/07/2026	View
Electrical Local 71 Voice Data Video Outside	Electrical	Commercial	03/06/2024	03/06/2024	View
Elevator Local 17	Elevator	Commercial	03/11/2026	03/11/2026	View
Glazier Local 181	Glazier	Commercial	06/17/2026	06/17/2026	View
Ironworker Local 17	Ironworker	Commercial	05/01/2026	04/29/2026	View
Labor HevHwy 1A	Laborer	Commercial	05/01/2026	04/29/2026	View
Labor Local 310	Laborer	Commercial	05/06/2026	05/06/2026	View
Operating Engineers - Building Local 18 - Zone I (A)	Operating Engineer	Commercial	10/14/2026	10/14/2026	View
Operating Engineers - HevHwy Zone I	Operating Engineer	Commercial	10/14/2026	10/14/2026	View
Painter Local 505 Drywall	Painter	Commercial	05/01/2026	04/29/2026	View
Painter Local 639 Sign and Display	Painter	Commercial	06/18/2025	06/18/2025	View
Painter Local 639 Zone 1 Sign	Painter	Commercial	07/30/2025	07/30/2025	View
Painter Local 707	Painter	Commercial	05/01/2026	04/29/2026	View
Painter Local 707 HvyHwy	Painter	Commercial	05/01/2026	04/29/2026	View
Pipefitter Local 120	Pipefitter	Commercial	07/01/2026	07/01/2026	View
Pipefitter Local 120 Mechanical Equipment	Pipefitter	Commercial	05/04/2026	04/29/2026	View
Pipefitter Local 120 Sprinklerfitter	Sprinkler Fitter	Commercial	05/04/2026	04/29/2026	View
Plasterer Local 526	Plasterer	Commercial	05/01/2026	04/29/2026	View
Plumber Local 55	Plumber	Commercial	06/10/2026	06/10/2026	View
Roofer Local 44	Roofer	Commercial	06/17/2026	06/17/2026	View
Sheet Metal Local 33 (Cleveland)	Sheet Metal Worker	Commercial	05/20/2026	05/20/2026	View
Sheet Metal Local 33 Industrial Door	Sheet Metal Worker	Commercial	08/01/2025	07/30/2025	View
Truck Driver Local 436 - HevHwy Class 1	Truck Driver	Commercial	05/28/2025	05/28/2025	View
Truck Driver Local 436 - HevHwy Class 2	Truck Driver	Commercial	05/28/2025	05/28/2025	View

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Asbestos Local 207	LCN01-2026ib	Asbestos Worker	07/08/2026	07/08/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Asbestos Abatement	$35.25		$11.20	$7.50	$1.00	$4.00	$0.00	$0.05	$0.00	$0.00	$59.00	$76.63
Trainee	**Percent**	**BHR**										
Trainee 1 Year - 600 Hrs	70.920000	$25.00	$11.20	$1.90	$1.00	$1.00	$0.00	$0.05	$0.00	$0.00	$40.15	$52.65

Special Calculation Note

Other: Drug Testing

Ratio

3 Journeymen to 1 Trainee

Jurisdiction (* denotes special jurisdictional note)

Adams, Ashland, Ashtabula*, Athens, Auglaize, Brown, Butler*, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Delaware, Erie*, Fairfield, Fayette, Franklin, Geauga, Greene, Guernsey, Hamilton, Hardin, Harrison, Highland, Hocking, Holmes, Huron, Knox, Lake, Licking, Logan, Lorain, Madison, Mahoning, Marion, Medina, Miami, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Portage, Preble, Richland, Ross, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Vinton, Warren*, Wayne

Special Jurisdictional Note

Ashtabula County: (post offices & townships of Ashtabula, Austinburg, Geneva, Harperfield, Jefferson, Plymouth & Saybrook) (townships of Andover, Cherry Valley, Colbrook, Canneaut, Denmark, Dorset, East Orwell, Hartsgrove, Kingville, Lenox, Monroe,Morgan,New Lyme,North Kingsville, Orwell, Pierpoint, Richmond Rock Creek, Rome, Shefield, Trumbull, Wayne, Williamsfield & Windsor)

Butler County: (townships of Fairfield, Hanover, Liberty, Milford, Morgan, Oxford, Ripley, Ross, St. Clair, Union & Wayne) (Lemon & Madison)

Erie County: (post offices & townships of Berlin, Berlin Heights,Birmingham,Florence, Huron, Milan, Shinrock & Vermilion)

Warren County: (townships of: Deerfield, Hamilton, Harlan, Salem, Union & Washington) (Clear Creek, Franklin, Mossie, Turtle Creek & Wayne)

Details

An Abatement Journeyman is anyone who has more than 600 hours in the Asbestos Abatement field.

Asbestos & lead paint abatement including, but not limited to the removal or encapsulation of asbestos & lead paint, all work in conjunction with the preparation of the removal of same & all work in conjunction with the clean up after said removal. The removal of all insulation materials, whether they contain asbestos or not, from mechanical systems (pipes, boilers, ducts, flues, breaching, etc.) is recognized as being the exclusive work of the Asbestos Abatement Workers.

On all mechanical systems (pipes, boilers, ducts, flues, breaching, etc.) that are going to be demolished, the removal of all insulating materials whether they contain asbestos or not shall be the exclusive work of the Laborers.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Asbestos Local 3 Heat & Frost Insulators	LCN01-2025ib	Asbestos Worker	08/20/2025	08/20/2025

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Asbestos Insulation Worker	$45.63		$16.60	$10.75	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$72.98	$95.80
Fire Stop Specialist	$45.63		$16.60	$10.75	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$72.98	$95.80
Fire Stop Technician	$37.28		$16.60	$4.50	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$58.38	$77.02
Apprentice	**Percent**	**BHR**										
1st year	56.300000	$25.69	$16.60	$1.50	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$43.79	$56.64
2nd year	62.100000	$28.34	$16.60	$2.50	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$47.44	$61.61
3rd year	67.930000	$31.00	$16.60	$3.50	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$51.10	$66.60
4th year	81.700000	$37.28	$16.60	$4.50	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$58.38	$77.02

Special Calculation Note

Ratio

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashtabula*, Cuyahoga, Erie*, Geauga, Huron, Lake, Lorain

Special Jurisdictional Note

Ashtabula: the townships of Ashtabula, Austinburg, Geneva, Jefferson, Plymouth & Saybrook
Erie: to Sandusky limits

Details

Mechanics & apprentices engaged in the manufacture, fabrication, assembling, molding, handling, erection, spraying, pouring, mixing, hanging, clean-up, preparation, application, adjusting, alteration, repairing, dismantling, reconditioning, testing & maintenance of Heat & Frost Insulation such as Magnesia, Asbestos, Hair Felt, Wool Felt, Cork, Mineral Wool, Infusorial Earth, Mercerized Silk, Flax, Fiber, Fire Felt, Asbestos Paper, Asbestos Curtain, Asbestos Millboard, Fiberglass, Foam glass, Styrofoam, Polyurethane, fire stopping, smoke stopping, all recyclable material, soundproofing, all penetrations, any flexible or rigid fireproofing, all jacketing systems including metal, lead, and PVC or other material.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Boilermaker Local 744	LCN01-2024ib	Boilermaker	06/05/2024	06/05/2024

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Boilermaker	$42.70		$7.07	$17.74	$0.78	$0.00	$9.56	$0.34	$0.00	$0.00	$78.19	$99.54
Apprentice	**Percent**	**BHR**										
1st 6 months	70.000000	$29.89	$7.07	$17.74	$0.78	$0.00	$9.56	$0.34	$0.00	$0.00	$65.38	$80.33
2nd 6 months	72.500000	$30.96	$7.07	$17.74	$0.78	$0.00	$9.56	$0.34	$0.00	$0.00	$66.45	$81.93
3rd 6 months	75.000000	$32.03	$7.07	$17.74	$0.78	$0.00	$9.56	$0.34	$0.00	$0.00	$67.52	$83.53
4th 6 months	77.500000	$33.09	$7.07	$17.74	$0.78	$0.00	$9.56	$0.34	$0.00	$0.00	$68.58	$85.13
5th 6 months	80.000000	$34.16	$7.07	$17.74	$0.78	$0.00	$9.56	$0.34	$0.00	$0.00	$69.65	$86.73
6th 6 months	85.000000	$36.30	$7.07	$17.74	$0.78	$0.00	$9.56	$0.34	$0.00	$0.00	$71.79	$89.93
7th 6 months	90.000000	$38.43	$7.07	$17.74	$0.78	$0.00	$9.56	$0.34	$0.00	$0.00	$73.92	$93.14
8th 6 months	95.000000	$40.57	$7.07	$17.74	$0.78	$0.00	$9.56	$0.34	$0.00	$0.00	$76.06	$96.34

Special Calculation Note

Other: Training Fund

Ratio

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Carroll, Coshocton, Cuyahoga, Geauga, Harrison, Holmes, Lake, Lorain, Mahoning, Medina, Portage, Stark, Summit, Trumbull, Tuscarawas, Wayne

Special Jurisdictional Note

Details

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Bricklayer Local 23 (Cleveland Marble Finisher)	LCN01-2024ib	Bricklayer	05/01/2024	05/01/2024

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Bricklayer Tile Marble Finisher	$30.52		$11.40	$5.15	$0.66	$0.00	$0.00	$0.00	$0.00	$0.00	$47.73	$62.99
Apprentice Tile Marble Finishers	**Percent**	**BHR**										
1st 6 months	60.000000	$18.31	$11.40	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$29.71	$38.87
2nd 6 months	70.000000	$21.36	$11.40	$5.15	$0.66	$0.00	$0.00	$0.00	$0.00	$0.00	$38.57	$49.26
3rd 6 months	75.000000	$22.89	$11.40	$5.15	$0.66	$0.00	$0.00	$0.00	$0.00	$0.00	$40.10	$51.55
4th 6 months	80.000000	$24.42	$11.40	$5.15	$0.66	$0.00	$0.00	$0.00	$0.00	$0.00	$41.63	$53.83
5th 6 months	85.000000	$25.94	$11.40	$5.15	$0.66	$0.00	$0.00	$0.00	$0.00	$0.00	$43.15	$56.12
6th 6 months	90.000000	$27.47	$11.40	$5.15	$0.66	$0.00	$0.00	$0.00	$0.00	$0.00	$44.68	$58.41

Special Calculation Note

Classification title contains "Bricklayer" because contract originates within the Bricklayer Local. Note that the classification description is clarified after the local union number at the top of the page.

Ratio

1-2 Journeymen to 1 Apprentice 3- 4 Journeymen to 2 Apprentice 5-6 Journeymen to 3 Apprentice 7-8 Journeymen to 4 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, Summit

Special Jurisdictional Note

Details

Tile Finishers:do all the cleaning, acid washing,grouting,by any methods or means. Also unpacking of all tiles,opening of all mastic containers,mixing of all mortar,thin-set and epoxy materials,also the distribution of it. They shall handle and distribute all materials such as sand,cement,lime,tile,all types of tile panels,prefabricated tile units, plastic materials and protective covering of all tile.Clean up and removal of always used in connection of said work. Terrazzo Finishers:Assisting in grinding, and handling of material whether by hand or wheel barrow, or power buggies, including sand Portland cement, resinous cement and admixtures, aggregates of marble, stone or other compositions, bonding adhesives, sealers, waxes, and coatings used for Terrazzo Mosaic work, preparing, mixing by hand or machine, and distributing (spreading) all kinds of underbed or underlayment necessary and all scratch coat used for terrazzo and mosaic work. Also the rubbing, grinding, cleaning, sealing and polishing same either by hand or machine. will assist in the installation of the sand bed, tar paper, wire lath, divider strips, and rolling procedures and acid etching of all concrete floors that require it before installation. Shall handle all materials and assist in the installation of all types of terrazzo floors whether conventional or thin-set variety. Marble Finishers:Loading and unloading handling and distributing of marble materials including the mixing of all materials used for the installation of marble, such as cement underbeds for the floors, thin-set or epoxies including but not limited to plastic materials. Clean up and removal of all waster material of said work. Cleaning and grouting of all marble and slate, and all polishing of marble and slate floors.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Bricklayer Local 23 (Cleveland Marble Mason)	LCN01-2024ib	Bricklayer	05/01/2024	05/01/2024

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Bricklayer Horizontal Marble Mason	$27.16		$11.40	$9.45	$0.67	$0.00	$0.00	$0.00	$0.00	$0.00	$48.68	$62.26
Masonary Maintenance Specialist	$13.58		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$13.58	$20.37
Apprentice	**Percent**	**BHR**										
1st 6 Months	60.000000	$16.30	$11.40	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$27.70	$35.84
2nd 6 Months	65.000000	$17.65	$11.40	$1.60	$0.67	$0.00	$0.00	$0.00	$0.00	$0.00	$31.32	$40.15
3rd 6 Months	70.000000	$19.01	$11.40	$9.45	$0.67	$0.00	$0.00	$0.00	$0.00	$0.00	$40.53	$50.04
4th 6 Months	75.000000	$20.37	$11.40	$9.45	$0.67	$0.00	$0.00	$0.00	$0.00	$0.00	$41.89	$52.08
5th 6 Months	80.000000	$21.73	$11.40	$9.45	$0.67	$0.00	$0.00	$0.00	$0.00	$0.00	$43.25	$54.11
6th 6 Months	85.020000	$23.09	$11.40	$9.45	$0.67	$0.00	$0.00	$0.00	$0.00	$0.00	$44.61	$56.16
MASON TRAINEES												
1st 90 Days	45.000000	$12.22	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$12.22	$18.33
1st year after 90 Days	45.000000	$12.22	$11.40	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$23.62	$29.73
2nd Year	50.000000	$13.58	$11.40	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$24.98	$31.77

Special Calculation Note

No special calculations for this skilled craft wage rate are required at this time. Classification title contains "Bricklayer" because contract originates within the Bricklayer Local.

Ratio

1-2 Journeyman to 1 Apprentice 3-4 Journeyman to 2 Apprentices 5-6 Journeyman to 2 Apprentices 6-10 Journeyman to 3 Apprentices 1 Apprentice permits 1 Mason Trainee 2 Apprentice permits 1 Mason Trainee 3 Apprentice permits 2 Mason Trainee 4 Apprentice permits 2 Mason Trainee

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, Summit

Special Jurisdictional Note

Details

In the mutual interest of both Employer and Union and to promote the masonry industry, it is agreed that the Employer may work with the Union and the Local Educational Partners in the jurisdiction of this agreement to employ School to work students provided that no conflicts exist with any Federal or State Laws. Employer must be party to a bonified Apprenticeship and Training program registered with the State of Ohio (OSAC). It is further agreed by both parties that the wages for the Masonry Maintenance Specialist shall be forty-five percent (45%) of the journeyman rate with no fringe benefits or as specified by the Local Educational Partner in the jurisdiction of the agreement.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Bricklayer Local 23 (Cleveland Marble, Terrazzo, & Mosiac)	LCN01-2024ib	Bricklayer	05/01/2024	05/01/2024

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Bricklayer Marble, Terrazzo, Mosaic	$37.96		$11.40	$9.45	$0.78	$0.00	$0.00	$0.00	$0.00	$0.00	$59.59	$78.57
Swing Scaffold Workers	$38.96		$11.40	$9.45	$0.78	$0.00	$0.00	$0.00	$0.00	$0.00	$60.59	$80.07
Stack	$38.46		$11.40	$9.45	$0.78	$0.00	$0.00	$0.00	$0.00	$0.00	$60.09	$79.32
Masonary Maintenance	$17.08		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$17.08	$25.62
Apprentice	**Percent**	**BHR**										
1st 6 months	60.000000	$22.78	$11.40	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$34.18	$45.56
2nd 6 months	65.000000	$24.67	$11.40	$9.45	$0.78	$0.00	$0.00	$0.00	$0.00	$0.00	$46.30	$58.64
3rd 6 months	70.000000	$26.57	$11.40	$9.45	$0.78	$0.00	$0.00	$0.00	$0.00	$0.00	$48.20	$61.49
4th 6 months	75.000000	$28.47	$11.40	$9.45	$0.78	$0.00	$0.00	$0.00	$0.00	$0.00	$50.10	$64.34
5th 6 months	80.000000	$30.37	$11.40	$9.45	$0.78	$0.00	$0.00	$0.00	$0.00	$0.00	$52.00	$67.18
6th 6 months	85.020000	$32.27	$11.40	$9.45	$0.78	$0.00	$0.00	$0.00	$0.00	$0.00	$53.90	$70.04
7th 6 months	90.000000	$34.16	$11.40	$9.45	$0.78	$0.00	$0.00	$0.00	$0.00	$0.00	$55.79	$72.88
8th 6 months	95.000000	$36.06	$11.40	$9.45	$0.78	$0.00	$0.00	$0.00	$0.00	$0.00	$57.69	$75.72
MASON TRAINEES 1st 90 Days	45.000000	$17.08	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$17.08	$25.62
1st Year after 90 Days	45.000000	$17.08	$11.40	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$28.48	$37.02
2nd Year	50.000000	$18.98	$11.40	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$30.38	$39.87

Special Calculation Note

Classification title contains "Bricklayer" because contract originates within the Bricklayer Local.

Ratio

1-2 Journeyman to 1 Apprentice 3-4 Journeyman to 2 Apprentices 5-6 Journeyman to 3 Apprentices 7-10 Journeyman to 4 Apprentices 1 Apprentice permits 1 Mason Trainee 2 Apprentice permits 1 Mason Trainee 3 Apprentice permits 2 Mason Trainee 4 Apprentice permits 2 Mason Trainee

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Geauga, Lake, Portage, Summit

Special Jurisdictional Note

Details

In the mutual interest of both Employer and Union and to promote the masonry industry, it is agreed that the Employer may work with the Union and the Local Educational Partners in the jurisdiction of this agreement to employ School to work students provided that no conflicts exist with any Federal or State Laws. Employer must be party to a bonified Apprenticeship and Training program registered with the State of Ohio (OSAC). It is further agreed by both parties that the wages for the Masonry Maintenance Specialist shall be forty-five percent (45%) of the journeyman rate with no fringe benefits or as specified by the Local Educational Partner in the jurisdiction of the agreement.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Bricklayer Local 23 (Cleveland Terrazzo Finisher)	LCN01-2024ib	Bricklayer	05/01/2024	05/01/2024

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Bricklayer Terrazzo Finisher	$30.52		$11.40	$5.15	$0.66	$0.00	$0.00	$0.00	$0.00	$0.00	$47.73	$62.99
Apprentice Terrazzo Finishers	**Percent**	**BHR**										
1st 6 months	60.000000	$18.31	$11.40	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$29.71	$38.87
2nd 6 months	70.000000	$21.36	$11.40	$5.15	$0.66	$0.00	$0.00	$0.00	$0.00	$0.00	$38.57	$49.26
3rd 6 months	75.000000	$22.89	$11.40	$5.15	$0.66	$0.00	$0.00	$0.00	$0.00	$0.00	$40.10	$51.55
4th 6 months	80.000000	$24.42	$11.40	$5.15	$0.66	$0.00	$0.00	$0.00	$0.00	$0.00	$41.63	$53.83
5th 6 months	85.000000	$25.94	$11.40	$5.15	$0.66	$0.00	$0.00	$0.00	$0.00	$0.00	$43.15	$56.12
6th 6 months	90.000000	$27.47	$11.40	$5.15	$0.66	$0.00	$0.00	$0.00	$0.00	$0.00	$44.68	$58.41

Special Calculation Note

Classification title contains "Bricklayer" because contract originates within the Bricklayer Local. Note that the classification description is clarified after the local union number at the top of the page.

Ratio

1-2 Journeymen to 1 Apprentice 3- 4 Journeymen to 2 Apprentices 5- 6 Journeymen to 3 Apprentices 7- 8 Journeymen to 4 Apprentices

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, Summit

Special Jurisdictional Note

Details

Tile Finishers:do all the cleaning, acid washing,grouting,by any methods or means. Also unpacking of all tiles,opening of all mastic containers,mixing of all mortar,thin-set and epoxy materials,also the distribution of it. They shall handle and distribute all materials such as sand,cement,lime,tile,all types of tile panels,prefabricated tile units, plastic materials and protective covering of all tile.Clean up and removal of always used in connection of said work. Terrazzo Finishers:Assisting in grinding, and handling of material whether by hand or wheel barrow, or power buggies, including sand Portland cement, resinous cement and admixtures, aggregates of marble, stone or other compositions, bonding adhesives, sealers, waxes, and coatings used for Terrazzo Mosaic work, preparing, mixing by hand or machine, and distributing (spreading) all kinds of underbed or underlayment necessary and all scratch coat used for terrazzo and mosaic work. Also the rubbing, grinding, cleaning, sealing and polishing same either by hand or machine. will assist in the installation of the sand bed, tar paper, wire lath, divider strips, and rolling procedures and acid etching of all concrete floors that require it before installation. Shall handle all materials and assist in the installation of all types of terrazzo floors whether conventional or thin-set variety. Marble Finishers:Loading and unloading handling and distributing of marble materials including the mixing of all materials used for the installation of marble, such as cement underbeds for the floors, thin-set or epoxies including but not limited to plastic materials. Clean up and removal of all waster material of said work. Cleaning and grouting of all marble and slate, and all polishing of marble and slate floors.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Bricklayer Local 23 (Cleveland Zone 1 Tile Finisher)	LCN01-2026ib	Bricklayer	05/06/2026	05/06/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Bricklayer Tile Finisher	$33.25		$10.20	$6.37	$0.76	$0.00	$0.00	$0.00	$0.00	$0.00	$50.58	$67.20
Apprentice Tile Finishers	**Percent**	**BHR**										
1st 6 months	60.000000	$19.95	$10.20	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$30.15	$40.13
2nd 6 months	70.020000	$23.28	$10.20	$6.37	$0.76	$0.00	$0.00	$0.00	$0.00	$0.00	$40.61	$52.25
3rd 6 months	75.000000	$24.94	$10.20	$6.37	$0.76	$0.00	$0.00	$0.00	$0.00	$0.00	$42.27	$54.74
4th 6 months	80.000000	$26.60	$10.20	$6.37	$0.76	$0.00	$0.00	$0.00	$0.00	$0.00	$43.93	$57.23
5th 6 months	85.000000	$28.26	$10.20	$6.37	$0.76	$0.00	$0.00	$0.00	$0.00	$0.00	$45.59	$59.72
6th 6 months	90.000000	$29.93	$10.20	$6.37	$0.76	$0.00	$0.00	$0.00	$0.00	$0.00	$47.26	$62.22

Special Calculation Note

Ratio

1-4 Journeymen to 1 Apprentice
5-10 Journeymen to 2 Apprentices
11-16 Journeymen to 3 Apprentices

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina

Special Jurisdictional Note

Details

Tile Finishers: do all the cleaning, acid washing, grouting, by any methods or means. Also unpacking of all tiles, opening of all mastic containers, mixing of all mortar, thin-set and epoxy materials, also the distribution of it. They shall handle and distribute all materials such as sand, cement, lime, tile, all types of tile panels, prefabricated tile units, plastic materials and protective covering of all tile. Clean up and removal of always used in connection of said work.

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Bricklayer Local 23 (Cleveland Zone 1 Tile Layer)	LCN01-2026ib	Bricklayer	05/06/2026	05/06/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Bricklayer Tile Layer	$38.22		$10.30	$2.43	$0.84	$0.00	$7.12	$0.00	$0.00	$0.00	$58.91	$78.02
Apprentice	**Percent**	**BHR**										
1st 30 days	60.000000	$22.93	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$22.93	$34.39
1st 6 months months	60.000000	$22.93	$10.30	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$33.23	$44.69
2nd 6 months	65.000000	$24.84	$10.30	$2.43	$0.84	$0.00	$7.12	$0.00	$0.00	$0.00	$45.53	$57.95
3rd 6 months	70.000000	$26.75	$10.30	$2.43	$0.84	$0.00	$7.12	$0.00	$0.00	$0.00	$47.44	$60.81
4th 6 months	75.020000	$28.67	$10.30	$2.43	$0.84	$0.00	$7.12	$0.00	$0.00	$0.00	$49.36	$63.70
5th 6 months	80.000000	$30.58	$10.30	$2.43	$0.84	$0.00	$7.12	$0.00	$0.00	$0.00	$51.27	$66.56
6th 6 months	85.000000	$32.49	$10.30	$2.43	$0.84	$0.00	$7.12	$0.00	$0.00	$0.00	$53.18	$69.42
7th 6 months	90.000000	$34.40	$10.30	$2.43	$0.84	$0.00	$7.12	$0.00	$0.00	$0.00	$55.09	$72.29
8th 6 months	95.000000	$36.31	$10.30	$2.43	$0.84	$0.00	$7.12	$0.00	$0.00	$0.00	$57.00	$75.16

Special Calculation Note

Ratio

1-4 Journeymen to 1 Apprentice
5-10 Journeymen to 2 Apprentices
11-16 Journeymen to 3 Apprentices

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina

Special Jurisdictional Note

Details

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Bricklayer Local 23 (Mentor)	LCN01-2026ib	Bricklayer	05/06/2026	05/06/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Bricklayer	$40.73		$10.78	$8.94	$0.90	$0.00	$3.00	$0.00	$0.00	$0.00	$64.35	$84.72
Cement & Stone Masons	$40.73		$10.78	$8.94	$0.90	$0.00	$3.00	$0.00	$0.00	$0.00	$64.35	$84.72
Pointer Caulker Cleaner	$40.73		$10.78	$8.94	$0.90	$0.00	$3.00	$0.00	$0.00	$0.00	$64.35	$84.72
Plasterers	$40.73		$10.78	$8.94	$0.90	$0.00	$3.00	$0.00	$0.00	$0.00	$64.35	$84.72
Mason Trainess												
1-90 Days	$24.44		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$24.44	$36.66
91-365 Days	$24.44		$10.78	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$35.22	$47.44
366 plus days	$28.51		$10.78	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$39.29	$53.55
Apprentice	**Percent**	**BHR**										
1st 6 months	60.000000	$24.44	$10.78	$0.00	$0.90	$0.00	$0.00	$0.00	$0.00	$0.00	$36.12	$48.34
2nd 6 months	65.000000	$26.47	$10.78	$8.94	$0.90	$0.00	$3.00	$0.00	$0.00	$0.00	$50.09	$63.32
3rd 6 months	70.000000	$28.51	$10.78	$8.94	$0.90	$0.00	$3.00	$0.00	$0.00	$0.00	$52.13	$66.38
4th 6 months	75.000000	$30.55	$10.78	$8.94	$0.90	$0.00	$3.00	$0.00	$0.00	$0.00	$54.17	$69.44
5th 6 months	80.000000	$32.58	$10.78	$8.94	$0.90	$0.00	$3.00	$0.00	$0.00	$0.00	$56.20	$72.49
6th 6 months	85.000000	$34.62	$10.78	$8.94	$0.90	$0.00	$3.00	$0.00	$0.00	$0.00	$58.24	$75.55
7th 6 months	90.000000	$36.66	$10.78	$8.94	$0.90	$0.00	$3.00	$0.00	$0.00	$0.00	$60.28	$78.61
8th 6 months	95.000000	$38.69	$10.78	$8.94	$0.90	$0.00	$3.00	$0.00	$0.00	$0.00	$62.31	$81.66

Special Calculation Note

Apprentices must be employed prior to hiring Mason Finisher(s).

Ratio

1-3 Journeymen to 1 Apprentice
4-6 Journeymen to 2 Apprentices
7-9 Journeymen to 3 Apprentices
10-12 Journeymen to 4 Apprentices

1 Apprentice permits 1 Mason Trainee
2 Apprentice permits 1 Mason Trainees
3 Apprentice permits 2 Mason Trainees
4 Apprentice permits 2 Mason Trainees

*Apprentices must be employed prior to hiring Mason Finisher(s).

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Geauga, Lake

Special Jurisdictional Note

Details

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Bricklayer Local 23 Heavy Hwy (A)	LCN02-2026ib	Bricklayer	06/10/2026	06/10/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Cement Mason Bricklayer Sewer Water Works A	$35.31		$10.71	$10.14	$0.59	$0.00	$1.80	$0.00	$0.00	$0.00	$58.55	$76.21
Apprentice	**Percent**	**BHR**										
1st year	70.000000	$24.72	$10.71	$10.14	$0.59	$0.00	$1.80	$0.00	$0.00	$0.00	$47.96	$60.32
2nd year	80.000000	$28.25	$10.71	$10.14	$0.59	$0.00	$1.80	$0.00	$0.00	$0.00	$51.49	$65.62
3rd year	90.000000	$31.78	$10.71	$10.14	$0.59	$0.00	$1.80	$0.00	$0.00	$0.00	$55.02	$70.91

Special Calculation Note

This rate is not for building construction.

This rate applies only to the Cement Masons. All other Bricklaying, PCC, Stone, Tile, Marble, Refractory, Industrial and all other applicable work performed will be performed under the applicable rates for those contracts.

Ratio

3 Journeymen to 1 Apprentice
6 Journeymen to 2 Apprentice
9 Journeymen to 3 Apprentice
12 Journeymen to 4 Apprentice
15 Journeymen to 5 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Geauga, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne

Special Jurisdictional Note

Details

Bricklayer Local 23 Heavy Hwy (A): Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site Heavy Construction, Airport Construction Or Railroad Construction Work.

Bricklayer Local 23 Heavy Hwy (B): Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control, Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Bricklayer Local 23 Heavy Hwy (B)	LCN02-2026ib	Bricklayer	06/10/2026	06/10/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Cement Mason Bricklayer Power Plants Tunnels Amusement Parks B	$36.31		$10.71	$10.14	$0.60	$0.00	$1.80	$0.00	$0.00	$0.00	$59.56	$77.72
Apprentice	**Percent**	**BHR**										
1st year	70.000000	$25.42	$10.71	$10.14	$0.60	$0.00	$1.80	$0.00	$0.00	$0.00	$48.67	$61.38
2nd year	80.000000	$29.05	$10.71	$10.14	$0.60	$0.00	$1.80	$0.00	$0.00	$0.00	$52.30	$66.83
3rd year	90.000000	$32.68	$10.71	$10.14	$0.60	$0.00	$1.80	$0.00	$0.00	$0.00	$55.93	$72.27

Special Calculation Note

This rate is not for building construction.

This rate applies only to the Cement Masons. All other Bricklaying, PCC, Stone, Tile, Marble, Refractory, Industrial and all other applicable work performed will be performed under the applicable rates for those contracts.

Ratio

3 Journeymen to 1 Apprentice
6 Journeymen to 2 Apprentice
9 Journeymen to 3 Apprentice
12 Journeymen to 4 Apprentice
15 Journeymen to 5 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Geauga, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne

Special Jurisdictional Note

Details

Bricklayer Local 23 Heavy Hwy (A): Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site Heavy Construction, Airport Construction Or Railroad Construction Work.

Bricklayer Local 23 Heavy Hwy (B): Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control, Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Carpenter Commercial Zone NEO 1A	LCN01-2026ib	Carpenter	06/24/2026	06/24/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Carpenter	$39.54		$9.59	$10.98	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$65.28	$85.05
Apprentice	**Percent**	**BHR**										
1st 3 months	60.000000	$23.72	$9.59	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$33.31	$45.17
2nd 3 months	60.000000	$23.72	$9.59	$0.00	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$38.48	$50.34
2nd 6 months	65.000000	$25.70	$9.59	$0.00	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$40.46	$53.31
3rd 6 months	70.000000	$27.68	$9.59	$0.00	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$42.44	$56.28
4th 6 months	75.000000	$29.66	$9.59	$0.00	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$44.42	$59.25
5th 6 months	80.000000	$31.63	$9.59	$8.78	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$55.17	$70.98
6th 6 months	85.000000	$33.61	$9.59	$9.33	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$57.70	$74.50
7th 6 months	90.000000	$35.59	$9.59	$9.88	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$60.23	$78.03
8th 6 months	95.000000	$37.56	$9.59	$10.43	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$62.75	$81.53

Special Calculation Note

*Other is International Training

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake

Special Jurisdictional Note

Details

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Carpenter Floorlayer Zone NEO 1A	LCN01-2026ib	Carpenter	07/01/2026	07/01/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Carpenter Floorlayer	$39.54		$9.59	$10.98	$0.82	$0.00	$4.19	$0.18	$0.00	$0.00	$65.30	$85.07
Apprentice	**Percent**	**BHR**										
1st 3 months	60.000000	$23.72	$9.59	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$33.31	$45.17
2nd 3 months	60.000000	$23.72	$9.59	$0.00	$0.82	$0.00	$4.19	$0.18	$0.00	$0.00	$38.50	$50.36
2nd 6 months	65.000000	$25.70	$9.59	$0.00	$0.82	$0.00	$4.19	$0.18	$0.00	$0.00	$40.48	$53.33
3rd 6 months	70.000000	$27.68	$9.59	$0.00	$0.82	$0.00	$4.19	$0.18	$0.00	$0.00	$42.46	$56.30
4th 6 months	75.000000	$29.66	$9.59	$0.00	$0.82	$0.00	$4.19	$0.18	$0.00	$0.00	$44.44	$59.27
5th 6 months	80.000000	$31.63	$9.59	$8.78	$0.82	$0.00	$4.19	$0.18	$0.00	$0.00	$55.19	$71.00
6th 6 months	85.000000	$33.61	$9.59	$9.33	$0.82	$0.00	$4.19	$0.18	$0.00	$0.00	$57.72	$74.53
7th 6 months	90.000000	$35.59	$9.59	$9.88	$0.82	$0.00	$4.19	$0.18	$0.00	$0.00	$60.25	$78.05
8th 6 months	95.000000	$37.56	$9.59	$10.43	$0.82	$0.00	$4.19	$0.18	$0.00	$0.00	$62.77	$81.55

Special Calculation Note

Other: International Training

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake

Special Jurisdictional Note

Details

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Carpenter Hev Hwy Zone NHH C1-B	LCN01-2026ib	Carpenter	07/01/2026	07/01/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	BHR											
Carpenter	$39.55		$9.59	$10.98	$0.82	$0.00	$4.19	$0.15	$0.00	$0.00	$65.28	$85.05
Apprentice	Percent	BHR										
1st 3 Months	60.000000	$23.73	$9.59	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$33.32	$45.19
2nd 3 Months	60.000000	$23.73	$9.59	$0.00	$0.82	$0.00	$4.19	$0.15	$0.00	$0.00	$38.48	$50.34
2nd 6 Months	65.000000	$25.71	$9.59	$0.00	$0.82	$0.00	$4.19	$0.15	$0.00	$0.00	$40.46	$53.31
3rd 6 Months	70.000000	$27.68	$9.59	$0.00	$0.82	$0.00	$4.19	$0.15	$0.00	$0.00	$42.43	$56.27
4th 6 Months	75.000000	$29.66	$9.59	$0.00	$0.82	$0.00	$4.19	$0.15	$0.00	$0.00	$44.41	$59.24
5th 6 Months	80.000000	$31.64	$9.59	$8.78	$0.82	$0.00	$4.19	$0.15	$0.00	$0.00	$55.17	$70.99
6th 6 Months	85.000000	$33.62	$9.59	$9.33	$0.82	$0.00	$4.19	$0.15	$0.00	$0.00	$57.70	$74.51
7th 6 Months	90.000000	$35.59	$9.59	$9.88	$0.82	$0.00	$4.19	$0.15	$0.00	$0.00	$60.22	$78.02
8th 6 Months	95.000000	$37.57	$9.59	$10.43	$0.82	$0.00	$4.19	$0.15	$0.00	$0.00	$62.75	$81.53

Special Calculation Note

Other: Training

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake

Special Jurisdictional Note

Details

Any construction work as performed within the definitions listed here below, all of which, taken together are "Heavy-Highway Construction" work:

"HIGHWAY CONSTRUCTION" work is defined as work performed to provide a facility to accommodate vehicular or pedestrian traffic and includes, but is not limited to, the construction of all streets, roads, expressways, turnpikes, bridges, drainage structures, grade separations, parking lots, rest areas, alleys, sidewalks, guardrails, fences, and sound barriers, but shall not include construction of buildings. "AIRPORT CONSTRUCTION" work is defined as including site preparation, grading, paving, drainage, fences, sidewalks, driveways, parking areas and similar work incidental to the construction of airfields but shall not include the construction of buildings. "HEAVY CONSTRUCTION" work is defined as including, but not limited to grade separations, foundations (does not include building foundations), abutments, retaining walls, shafts, tunnels, subways, elevators, drainage projects, flood control projects, reclamation projects, reservoirs, water supply projects, water development projects, hydro-electric development, utility transmission lines, including right-of-way clearing, locks, dams, dikes, levees, revetments, channels, channel cutoffs, intakes, dredging projects, jetties, breakwater, docks, harbors; and all municipal and utility construction except construction classified as building construction.

"RAILROAD CONSTRUCTION" work is defined as including, grading, drainage, placing of rails, crossties, ballast and the construction of bridges, and other incidentals for railroads, street railways construction projects and rapid transit system projects, but shall not include the construction of buildings.

"SEWER WATERWORKS AND UTILITY CONSTRUCTION" work is defined as including construction of all storm sewers, sanitary sewers, supplying and distributing waterlines, gas lines, telephone and television conduit, underground electrical lines, and similar utility construction. Main waterline and trunk sewers connecting water works and/or sewage disposal plants are included within this definition.

"SUPPORIVE EXCAVATION AND DEEP FOUNDATIONS" work is all driven and drilled foundations within the building site.

"POWER PLANT SITE" work is defined as all work which is inside the property line, but outside the actual building construction. Such work shall include, but is not limited to, the grading and installation of sewer lines, drainage lines, gas lines, telephone and television conduit, underground electrical lines and similar utility construction, parking lots, bridges, roads, streets, sidewalks, reservoirs, ash pits, storage tanks, ramps and other such construction work performed on the work site, but shall not include the actual excavation for the buildings, foundations or footers or construction of the buildings.

"POLLUTION CONTROL, SEWAGE PLANT, WASTE PLANT AND WATER TREATMENT FACILITIES CONSTRUCTION" WORK shall be all work in construction of pumping stations, waste and sewage disposal plants, incinerator plants, water treatment plants, filtration plants, solid waste disposal and similar pollution control facilities.

"SOLAR & WIND FARM" WORK is considered "HEAVY CONSTRUCTION" and includes all work in the construction of solar fields/farms and wind fields/farms (not installations on buildings).

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Carpenter Insulation Zone NEO 1A	LCN01-2026ib	Carpenter	07/15/2026	07/15/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Carpenter Insulation	$31.63		$9.59	$10.98	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$57.37	$73.19
Apprentice	**Percent**	**BHR**										
1st 3 months	60.000000	$18.98	$9.59	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$28.57	$38.06
2nd 3 months	60.000000	$18.98	$9.59	$0.00	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$33.74	$43.23
2nd 6 months	65.000000	$20.56	$9.59	$0.00	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$35.32	$45.60
3rd 6 months	70.000000	$22.14	$9.59	$0.00	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$36.90	$47.97
4th 6 months	75.020000	$23.73	$9.59	$0.00	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$38.49	$50.35
5th 6 months	80.000000	$25.30	$9.59	$8.78	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$48.84	$61.49
6th 6 months	85.000000	$26.89	$9.59	$9.33	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$50.98	$64.42
7th 6 months	90.000000	$28.47	$9.59	$9.88	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$53.11	$67.34
8th 6 month	95.000000	$30.05	$9.59	$10.43	$0.82	$0.00	$4.20	$0.15	$0.00	$0.00	$55.24	$70.27

Special Calculation Note

*Other is Training

Ratio

1 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake

Special Jurisdictional Note

Details

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Carpenter Millwright NE Zone M1-A	LCN01-2026ib	Carpenter	07/01/2026	07/01/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Carpenter Millwright	$37.41		$9.60	$11.33	$0.82	$0.00	$6.87	$0.20	$0.00	$0.00	$66.23	$84.94
Certified Welder	$38.41		$9.60	$11.33	$0.82	$0.00	$6.87	$0.20	$0.00	$0.00	$67.23	$86.44
Layout man on Monorail	$40.22		$9.60	$11.33	$0.82	$0.00	$6.87	$0.20	$0.00	$0.00	$69.04	$89.15
Apprentice	**Percent**	**BHR**										
1st 6 months	60.000000	$22.45	$9.60	$11.33	$0.82	$0.00	$6.87	$0.20	$0.00	$0.00	$51.27	$62.49
2nd 6 months	65.000000	$24.32	$9.60	$11.33	$0.82	$0.00	$6.87	$0.20	$0.00	$0.00	$53.14	$65.30
3rd 6 months	70.000000	$26.19	$9.60	$11.33	$0.82	$0.00	$6.87	$0.20	$0.00	$0.00	$55.01	$68.11
4th 6 months	75.000000	$28.06	$9.60	$11.33	$0.82	$0.00	$6.87	$0.20	$0.00	$0.00	$56.88	$70.91
5th 6 months	80.000000	$29.93	$9.60	$11.33	$0.82	$0.00	$6.87	$0.20	$0.00	$0.00	$58.75	$73.72
6th 6 months	85.000000	$31.80	$9.60	$11.33	$0.82	$0.00	$6.87	$0.20	$0.00	$0.00	$60.62	$76.52
7th 6 months	90.000000	$33.67	$9.60	$11.33	$0.82	$0.00	$6.87	$0.20	$0.00	$0.00	$62.49	$79.33
8th 6 months	95.000000	$35.54	$9.60	$11.33	$0.82	$0.00	$6.87	$0.20	$0.00	$0.00	$64.36	$82.13

Special Calculation Note

Other is Training

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashland, Ashtabula, Cuyahoga, Erie, Geauga, Huron, Lake, Lorain, Medina, Portage, Richland, Summit

Special Jurisdictional Note

Details

The term "Millwright and Machine Erectors'" jurisdiction shall mean the unloading, hoisting, rigging, skidding, moving, dismantling, aligning, erecting, assembling, repairing, maintenance and adjusting of all structures, processing areas either under cover, under ground or elsewhere, required to process material, handle, manufacture or service, be it powered or receiving power manually, by steam, gas, electricity, gasoline, diesel, nuclear, solar, water, air or chemically, and in industries such as and including, which are identified for the purpose of description, but not limited to, the following: woodworking plants; canning industries; steel mills; coffee roasting plants; paper and pulp; cellophane; stone crushing; gravel and sand washing and handling; refineries; grain storage and handling; asphalt plants; sewage disposal; water plants; laundries; bakeries; mixing plants; can, bottle and bag packing plants; textile mills; paint mills; breweries; milk processing plants; power plants; aluminum processing or manufacturing plants; and amusement and entertainment fields. The installation of mechanical equipment in atomic energy plants; installation of reactors in power plants; installation of control rods and equipment in reactors; and installation of mechanical equipment in rocket missile bases, launchers, launching gantry, floating bases, hydraulic escape doors and any and all component parts thereto, either assembled, semi-assembled or disassembled. The installation of, but not limited to, the following: setting-up of all engines, motors, generators, air compressors, fans, pumps, scales, hoppers, conveyors of all types, sizes and their supports; escalators; man lifts; moving sidewalks; hoists; dumb waiters; all types of feeding machinery; amusement devices; mechanical pin setters and spotters in bowling alleys; refrigeration equipment; and the installation of all types of equipment necessary and required to process material either in the manufacturing or servicing. The handling and installation of pulleys, gears, sheaves, fly wheels, air and vacuum drives, worm drives and gear drives directly or indirectly coupled to motors, belts, chains, screws, legs, boots, guards, booth tanks, all bin valves, turn heads and indicators, shafting, bearings, cable sprockets, cutting all key seats in new and old work, troughs, chippers, filters, calendars, rolls, winders, rewinders, slitters, cutters, wrapping machines, blowers, forging machines, rams, hydraulic or otherwise, planing, extruder, ball, dust collectors, equipment in meat packing plants, splicing of ropes and cables. The laying-out, fabrication and installation of protection equipment including machinery guards, making and setting of templates for machinery, fabrication of bolts, nuts, pans, drilling of holes for any equipment which the Millwrights install regardless of materials; all welding and burning regardless of type, fabrication of all lines, hose or tubing used in lubricating machinery installed by Millwrights; grinding, cleaning, servicing and any machine work necessary for any part of any equipment installed by the Millwrights; and the break-in and trial run of any equipment or machinery installed by the Millwrights. It is agreed the Millwrights shall use the layout tools and optic equipment necessary to perform their work.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Carpenter Pile Driver Hev Hwy Zone NHH P2-B	LCN01-2026ib	Carpenter	07/01/2026	07/01/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Carpenter Pile Driver	$37.35		$9.55	$11.33	$0.82	$0.00	$6.98	$0.20	$0.00	$0.00	$66.23	$84.91
Diver	$56.03		$9.55	$11.33	$0.82	$0.00	$6.98	$0.20	$0.00	$0.00	$84.91	$112.93
Certified Welder	$38.40		$9.55	$11.33	$0.82	$0.00	$6.98	$0.20	$0.00	$0.00	$67.28	$86.48
Apprentice	**Percent**	**BHR**										
1st 6 months	60.000000	$22.41	$9.55	$11.33	$0.82	$0.00	$6.98	$0.20	$0.00	$0.00	$51.29	$62.50
2nd 6 months	65.000000	$24.28	$9.55	$11.33	$0.82	$0.00	$6.98	$0.20	$0.00	$0.00	$53.16	$65.30
3rd 6 months	70.000000	$26.14	$9.55	$11.33	$0.82	$0.00	$6.98	$0.20	$0.00	$0.00	$55.02	$68.09
4th 6 months	75.000000	$28.01	$9.55	$11.33	$0.82	$0.00	$6.98	$0.20	$0.00	$0.00	$56.89	$70.90
5th 6 months	80.000000	$29.88	$9.55	$11.33	$0.82	$0.00	$6.98	$0.20	$0.00	$0.00	$58.76	$73.70
6th 6 months	85.000000	$31.75	$9.55	$11.33	$0.82	$0.00	$6.98	$0.20	$0.00	$0.00	$60.63	$76.50
7th 6 months	90.000000	$33.62	$9.55	$11.33	$0.82	$0.00	$6.98	$0.20	$0.00	$0.00	$62.50	$79.31
8th 6 months	95.000000	$35.48	$9.55	$11.33	$0.82	$0.00	$6.98	$0.20	$0.00	$0.00	$64.36	$82.10

Special Calculation Note

*Other is Training

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashland, Ashtabula, Cuyahoga, Erie, Geauga, Huron, Lake, Lorain, Medina, Portage, Richland, Summit

Special Jurisdictional Note

Details

Pile Drivers duties shall include but not limited to: Pile driving, milling, fashioning, joining assembling, erecting, fastening, or dismantling of all material of wood, plastic, metal, fiber, cork and composition and all other substitute materials: pile driving, cutting, fitting and placing of lagging, and the handling, cleaning, erecting, installing and dismantling of machinery, equipment and erecting pre-engineered metal buildings. Pile Drivers work but not limited to: unloading, assembling, erection, repairs, operation, signaling, dismantling and reloading all equipment that is used for pile driving including pule butts is defined as sheeting or scrap piling. Underwater work that may be required in connection with the installation of piling. The driver and his tender work as a team and shall arrive at their own financial arrangements with the contractor. Any configuration of wood, steel, concrete or composite that is jetted, driven or vibrated onto the ground by conventional pile driving equipment for the purpose of supporting a future load that may be permanent or temporary. The construction of all wharves and docks, including the fabrication and installation of floating docks. Driving bracing, plumbing, cutting off and capping of all piling whether wood, metal, pipe piling or composite, loading, unloading, erecting, framing, dismantling, moving and handling of pile driving equipment piling used in the construction and repair of all wharves, docks, piers, trestles, caissons, cofferdams and erection of all sea walls and breakwaters. All underwater and marine work on bulkheads, wharves, docks, shipyards, caissons, piers, bridges, pipeline, work, viaducts, marine cable and trestles, as well as salvage and reclamation work where divers are employed. Rate shall include carpenters, acoustic and ceiling installers, drywall installers, pile drivers and floorlayers.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Cement Mason Local 404	LCN01-2026ib	Cement Mason	08/19/2026	08/19/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Cement Mason	$38.58		$10.15	$7.50	$0.78	$0.00	$6.20	$0.08	$0.00	$0.07	$63.36	$82.65
Apprentice	**Percent**	**BHR**										
1st yr	58.030000	$22.39	$10.15	$7.50	$0.78	$0.00	$3.10	$0.08	$0.00	$0.07	$44.07	$55.27
2nd yr	73.040000	$28.18	$10.15	$7.50	$0.78	$0.00	$3.10	$0.08	$0.00	$0.07	$49.86	$63.95
3rd yr	83.040000	$32.04	$10.15	$7.50	$0.78	$0.00	$3.10	$0.08	$0.00	$0.07	$53.72	$69.74
4th yr	98.030000	$37.82	$10.15	$7.50	$0.78	$0.00	$3.10	$0.08	$0.00	$0.07	$59.50	$78.41

Special Calculation Note

OTHER: Training Fund
MISC: Substance Abuse Testing ($0.04) & Respirator Safety ($0.03)

Ratio

5 Journeymen to 1 Apprentice
2 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Lorain

Special Jurisdictional Note

Details

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Cement Mason Local 404 Hev Hwy	LCN01-2026ib	Cement Mason	05/01/2026	04/29/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Cement Mason	$37.29		$9.50	$8.05	$0.75	$0.00	$3.74	$0.08	$0.00	$0.00	$59.41	$78.06
Apprentice	**Percent**	**BHR**										
1st Year	70.000000	$26.10	$9.50	$8.05	$0.75	$0.00	$3.74	$0.08	$0.00	$0.00	$48.22	$61.27
2nd Year	80.000000	$29.83	$9.50	$8.05	$0.75	$0.00	$3.74	$0.08	$0.00	$0.00	$51.95	$66.86
3rd Year	90.000000	$33.56	$9.50	$8.05	$0.75	$0.00	$3.74	$0.08	$0.00	$0.00	$55.68	$72.46
4th Year	95.000000	$35.43	$9.50	$8.05	$0.75	$0.00	$3.74	$0.08	$0.00	$0.00	$57.55	$75.26

Special Calculation Note

Other: International Training Fund

Ratio

1 Journeyman to 1 Apprentice
2 Journeymen to 1 Apprentice thereafter

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Lorain

Special Jurisdictional Note

Details

Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site, Heavy Construction, Airport Construction Or Railroad Construction Work, Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work, Pollution Control, Sewer Plant, Waste & Water Plant, Water Treatment Facilities Construction.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 673 Inside	LCN01-2026ib	Electrical	03/04/2026	03/04/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Electrician	$41.00		$7.83	$8.98	$0.70	$0.00	$6.00	$1.23	$0.00	$0.00	$65.74	$86.24
Welder	$45.10		$7.83	$8.98	$0.70	$0.00	$6.00	$1.35	$0.00	$0.00	$69.96	$92.51
Apprentice	**Percent**	**BHR**										
1st Period	45.000000	$18.45	$7.83	$0.00	$0.70	$0.00	$0.00	$0.55	$0.00	$0.00	$27.53	$36.75
2nd Period	50.000000	$20.50	$7.83	$0.00	$0.70	$0.00	$0.00	$0.62	$0.00	$0.00	$29.65	$39.90
3rd Period	55.000000	$22.55	$7.83	$8.98	$0.70	$0.00	$6.00	$0.68	$0.00	$0.00	$46.74	$58.02
4th Period	65.000000	$26.65	$7.83	$8.98	$0.70	$0.00	$6.00	$0.80	$0.00	$0.00	$50.96	$64.28
5th Period	75.000000	$30.75	$7.83	$8.98	$0.70	$0.00	$6.00	$0.92	$0.00	$0.00	$55.18	$70.56
6th Period	85.000000	$34.85	$7.83	$8.98	$0.70	$0.00	$6.00	$1.05	$0.00	$0.00	$59.41	$76.84

Special Calculation Note

Other: National Electrical Benefit Fund

Ratio

1 to 3 Journeymen to 2 Apprentices
4 to 6 Journeymen to 4 Apprentices
7 to 9 Journeymen to 6 Apprentices

Jurisdiction (* denotes special jurisdictional note)

Ashtabula*, Geauga*, Lake

Special Jurisdictional Note

The following townships In Ashtabula County are EXCLUDED: Orwell, Colebrook, Williamsfield, Wayne and Windsor.

In Geauga County the following townships are INCLUDED: Burton, Chardon, Claridon, Hambden, Huntsburg, Montville, Munson, Newbury and Thompson.

Details

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 673 Inside Lt Commercial Northern	LCN01-2026ib	Electrical	03/04/2026	03/04/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Electrician	$41.00		$7.83	$8.98	$0.70	$0.00	$6.00	$1.23	$0.00	$0.00	$65.74	$86.24
Welder	$45.10		$7.83	$8.98	$0.70	$0.00	$6.00	$1.35	$0.00	$0.00	$69.96	$92.51
CE-3 12,001-14,000 Hrs	$31.71		$6.99	$0.00	$0.95	$0.00	$0.95	$0.95	$0.00	$0.10	$41.65	$57.50
CE-2 10,001-12,000 Hrs	$24.92		$6.99	$0.00	$0.95	$0.00	$0.75	$0.75	$0.00	$0.10	$34.46	$46.92
CE-1 8,001-10,000 Hrs	$22.65		$6.99	$0.00	$0.95	$0.00	$0.68	$0.68	$0.00	$0.10	$32.05	$43.37
CW-4 6,001-8,000 Hrs	$20.39		$6.99	$0.00	$0.95	$0.00	$0.61	$0.61	$0.00	$0.10	$29.65	$39.84
CW-3 4,001-6,000 Hrs	$18.12		$6.99	$0.00	$0.95	$0.00	$0.54	$0.54	$0.00	$0.10	$27.24	$36.30
CW-2 2,001-4,000 Hrs	$16.99		$6.99	$0.00	$0.95	$0.00	$0.51	$0.51	$0.00	$0.10	$26.05	$34.55
CW-1 0-2,000 Hrs	$15.86		$6.99	$0.00	$0.95	$0.00	$0.48	$0.48	$0.00	$0.10	$24.86	$32.79
Apprentice	**Percent**	**BHR**										
1st Period	45.000000	$18.45	$7.83	$0.50	$0.70	$0.00	$0.00	$0.00	$0.00	$0.00	$27.48	$36.70
2nd Period	50.020000	$20.51	$7.83	$0.56	$0.70	$0.00	$0.00	$0.00	$0.00	$0.00	$29.60	$39.86
3rd Period	55.000000	$22.55	$7.83	$9.59	$0.70	$0.00	$5.46	$0.00	$0.00	$0.00	$46.13	$57.41
4th Period	65.000000	$26.65	$7.83	$9.71	$0.70	$0.00	$5.46	$0.00	$0.00	$0.00	$50.35	$63.67
5th Period	75.000000	$30.75	$7.83	$9.82	$0.70	$0.00	$5.46	$0.00	$0.00	$0.00	$54.56	$69.94
6th Period	85.000000	$34.85	$7.83	$9.93	$0.70	$0.00	$5.46	$0.00	$0.00	$0.00	$58.77	$76.20

Special Calculation Note

Other: National Electrical Benefit Fund
Misc: Central Collection Admin Fee

Ratio

1 to 3 Journeymen to 2 Apprentices
4 to 6 Journeymen to 4 Apprentices
7 to 9 Journeymen to 6 Apprentices

Construction Electrician and Construction Wireman Ratio There shall be a minimum ratio of one inside Journeyman Wireman to every (4) employees of different classifications per jobsite. An Inside Journeyman Wireman is required on the project as the fifth (5th) worker or when apprentices are used

Jurisdiction (* denotes special jurisdictional note)

Ashtabula*, Geauga*, Lake

Special Jurisdictional Note

The following townships In Ashtabula County are EXCLUDED: Orwell, Colebrook, Williamsfield, Wayne and Windsor.

In Geauga County the following townships are INCLUDED: Burton, Chardon, Claridon, Hambden, Huntsburg, Montville, Munson, Newbury and Thompson.

Details

The scope of work for the light commercial agreement shall apply to the following small medical clinics, stand-alone doctor and dentist offices with up to 600 amp service (not attached to a hospital), gas stations/convenience stores, fast food restaurants and franchised chain restaurants including independent bars and taverns, places of worship, funeral homes, nursing homes, assisted living facilities and day-care facilities under 15,000 sq ft, small office, retail/wholesale facilities under 15,000 sq ft with less than 10 units attached, storage units, car washes, express hotels and motels (4 stories or less) without conference or restaurants facilities, residential units (subject to Davis Bacon Rates) small stand-alone manufacturing facilities when free standing and not part of a larger facility (less than 15,000 sq ft) solar projects (500 panels or less) unless other wise covered under this agreement, lighting retrofits (when not associated with remodels involving branch re-circuiting) Lighting retrofits shall be defined as the changing of lamps and ballasts in existing light fixtures and shall also include the one for one replacement of existing fixtures.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 673 Lightning Rod	OCR01-2022sks	Electrical	11/10/2022	11/10/2022

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Electrical Lightning Protection	$30.44		$7.50	$0.91	$0.00	$2.84	$1.83	$0.00	$0.00	$0.00	$43.52	$58.74
Experience Level	**Percent**	**BHR**										
Lightning Protection Installer 1st day-6 months	50.000000	$15.22	$7.50	$0.46	$0.00	$0.41	$0.92	$0.00	$0.00	$0.00	$24.51	$32.12
Lightning Protection Installer 2nd 6 months	55.000000	$16.74	$7.50	$0.50	$0.00	$0.45	$1.01	$0.00	$0.00	$0.00	$26.20	$34.57
Lightning Protection Installer 3rd 6th months	60.000000	$18.26	$7.50	$0.55	$0.00	$0.89	$1.10	$0.00	$0.00	$0.00	$28.30	$37.44
Lightning Protection Installer 4th 6 months months	65.000000	$19.79	$7.50	$0.59	$0.00	$0.97	$1.19	$0.00	$0.00	$0.00	$30.04	$39.93
Lightning Protection Installer 3rd Year	70.000000	$21.31	$7.50	$0.64	$0.00	$1.52	$1.28	$0.00	$0.00	$0.00	$32.25	$42.90
Lightning Protection Installer 4th Year	80.000000	$24.35	$7.50	$0.73	$0.00	$1.73	$1.46	$0.00	$0.00	$0.00	$35.77	$47.95
Lightning Protection Installer 5th Year	90.000000	$27.40	$7.50	$0.82	$0.00	$1.95	$1.65	$0.00	$0.00	$0.00	$39.32	$53.01

Special Calculation Note

Ratio

1- 3 Journeyman to 2 Trainee 4-6 Journeyman to 4 Trainee 7-9 Journeyman to 6 Trainee

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Geauga, Lake

Special Jurisdictional Note

Details

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 673 Voice Data Video	LCN01-2023ib	Electrical	06/14/2023	06/14/2023

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Electrical Installer Technician	$28.95		$10.98	$0.87	$0.70	$0.00	$1.36	$0.00	$0.00	$0.00	$42.86	$57.34
Communication Technician	$30.20		$10.98	$0.91	$0.70	$0.00	$1.36	$0.00	$0.00	$0.00	$44.15	$59.25
Senior Technician	$31.17		$10.98	$0.93	$0.70	$0.00	$1.36	$0.00	$0.00	$0.00	$45.14	$60.73
Security Tech Level I	$28.95		$10.98	$0.87	$0.70	$0.00	$1.36	$0.00	$0.00	$0.00	$42.86	$57.34
Security Tech Level II	$30.20		$10.98	$0.91	$0.70	$0.00	$1.36	$0.00	$0.00	$0.00	$44.15	$59.25
Security Tech Level III	$31.17		$10.98	$0.93	$0.70	$0.00	$1.36	$0.00	$0.00	$0.00	$45.14	$60.73
Audio Visual Tech Level I	$28.95		$10.98	$0.87	$0.70	$0.00	$1.36	$0.00	$0.00	$0.00	$42.86	$57.34
Audio Visual Tech Level II	$30.20		$10.98	$0.91	$0.70	$0.00	$1.36	$0.00	$0.00	$0.00	$44.15	$59.25
Audio Visual Tech Level III	$31.17		$10.98	$0.93	$0.70	$0.00	$1.36	$0.00	$0.00	$0.00	$45.14	$60.73
Apprentice	**Percent**	**BHR**										
1st 6 Months	55.000000	$15.92	$10.98	$0.48	$0.70	$0.00	$1.36	$0.00	$0.00	$0.00	$29.44	$37.40
2nd 6 Months	65.000000	$18.82	$10.98	$0.56	$0.70	$0.00	$1.36	$0.00	$0.00	$0.00	$32.42	$41.83
2nd Year	75.000000	$21.71	$10.98	$0.65	$0.70	$0.00	$1.36	$0.00	$0.00	$0.00	$35.40	$46.26
3rd Year	80.000000	$23.16	$10.98	$0.69	$0.70	$0.00	$1.36	$0.00	$0.00	$0.00	$36.89	$48.47
4th Year	85.000000	$24.61	$10.98	$0.74	$0.70	$0.00	$1.36	$0.00	$0.00	$0.00	$38.39	$50.69
5th Year	90.000000	$26.06	$10.98	$0.78	$0.70	$0.00	$1.36	$0.00	$0.00	$0.00	$39.88	$52.90

Special Calculation Note

No special calculations for this skilled craft wage rate are required at this time.

Ratio

1 to 3 Journeyman to 2 Apprentice 4 to 6 Journeyman to 4 Apprentice 7 to 9 Journeyman to 6 Apprentices

Jurisdiction (* denotes special jurisdictional note)

Ashtabula*, Geauga*, Lake

Special Jurisdictional Note

In Ashtabula County the following townships are excluded: (Orwell, Colebrook, Williamsfield, Wayne and Windsor). In Geauga County the following townships are included: (Burton, Chardon, Claridon, Hambden, Huntsburg, Montville, Munson, Newbury and Thompson)

Details

The following work is EXCLUDED from the Teledata Technician work scope: The installation of computer systems in industrial applications such as assembly lines, robotics, computer controller manufacturing systems. The installation of conduit and/ or raceways shall be installed by Inside Wireman . On sites where there is no Inside Wireman employed, the Teledata Technician may install raceway, or conduit not greater then 10 ft. Fire Alarm work is excluded on all new construction sites or wherever the fire alarm system is installed in conduit All HVAC control work. *Installer Technician: Successful completion of the Installer/Technician Apprenticeship Program or have been certified by the IBEW/NECA Joint Apprenticeship and Training Program as an Installer/Technician. *Communications Technician: At least 2 years experience as a Installer/Technician and a minimum of 12 hours continuous related education or have been certified by an IBEW/NECA Joint Apprenticeship Training Program as a Communication Technician.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 71 Cleveland Commercial Projects	LCN01-2026ib	Electrical	01/21/2026	01/21/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Electrical Lineman	$61.19		$7.50	$1.84	$0.61	$0.00	$14.69	$1.00	$0.00	$0.00	$86.83	$117.42
Cable Splicer	$61.19		$7.50	$1.84	$0.61	$0.00	$14.69	$1.00	$0.00	$0.00	$86.83	$117.42
Equip. Operator	$55.07		$7.50	$1.65	$0.55	$0.00	$13.22	$1.00	$0.00	$0.00	$78.99	$106.53
Groundman 0 to 12 months	$36.71		$7.50	$1.10	$0.37	$0.00	$8.81	$1.00	$0.00	$0.00	$55.49	$73.84
Groundman 1 year plus	$42.83		$7.50	$1.28	$0.43	$0.00	$10.28	$1.00	$0.00	$0.00	$63.32	$84.73
Apprentice Linemen	**Percent**	**BHR**										
1st 1000 Hrs	60.000000	$36.71	$7.50	$1.10	$0.37	$0.00	$8.81	$1.00	$0.00	$0.00	$55.49	$73.84
2nd 1000 Hrs	65.000000	$39.77	$7.50	$1.19	$0.40	$0.00	$9.54	$1.00	$0.00	$0.00	$59.40	$79.28
3rd 1000 Hrs	70.000000	$42.83	$7.50	$1.28	$0.43	$0.00	$10.28	$1.00	$0.00	$0.00	$63.32	$84.73
4th 1000 Hrs	75.000000	$45.89	$7.50	$1.38	$0.46	$0.00	$11.01	$1.00	$0.00	$0.00	$67.24	$90.19
5th 1000 Hrs	80.000000	$48.95	$7.50	$1.47	$0.49	$0.00	$11.75	$1.00	$0.00	$0.00	$71.16	$95.64
6th 1000 Hrs	85.000000	$52.01	$7.50	$1.56	$0.55	$0.00	$12.48	$1.00	$0.00	$0.00	$75.10	$101.11
7th 1000 Hrs	90.000000	$55.07	$7.50	$1.65	$0.55	$0.00	$13.22	$1.00	$0.00	$0.00	$78.99	$106.53

Special Calculation Note

Other: Health Reimbursement Account

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Lorain

Special Jurisdictional Note

Details

A groundman when directed shall assist a Journeymen in the performance of his/her work on the ground, including the use of hand tools. Under no circumstances shall this classification climb poles, towers, ladders, or work from an elevated platform or bucket truck. This classification shall not perform work normally assigned to an apprentice lineman. There shall be no more than one (1) Groundman for each two (2) Journeyman except when performing DOT Traffic Signal or Highway lighting work where the ratio can be two (2) Groundman for each Journeyman or Operator.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 71 Cleveland Municipal Power & Transit	LCN01-2025ib	Electrical	01/21/2026	01/21/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Electrical Lineman	$56.91		$7.50	$1.71	$0.57	$0.00	$13.09	$1.00	$0.00	$0.00	$80.78	$109.23
Cable Splicer	$56.91		$7.50	$1.71	$0.57	$0.00	$13.09	$1.00	$0.00	$0.00	$80.78	$109.23
Equip. Operator	$51.22		$7.50	$1.54	$0.51	$0.00	$11.78	$1.00	$0.00	$0.00	$73.55	$99.16
Groundman 0 to 12 months	$34.15		$7.50	$1.02	$0.34	$0.00	$7.85	$1.00	$0.00	$0.00	$51.86	$68.94
Groundman 1 Year or More	$39.84		$7.50	$1.20	$0.40	$0.00	$9.16	$1.00	$0.00	$0.00	$59.10	$79.02
Apprentice Linemen	**Percent**	**BHR**										
1st 1000 Hrs	60.000000	$34.15	$7.50	$1.02	$0.34	$0.00	$7.85	$1.00	$0.00	$0.00	$51.86	$68.94
2nd 1000 Hrs	65.000000	$36.99	$7.50	$1.11	$0.37	$0.00	$8.51	$1.00	$0.00	$0.00	$55.48	$73.97
3rd 1000 Hrs	70.000000	$39.84	$7.50	$1.20	$0.40	$0.00	$9.16	$1.00	$0.00	$0.00	$59.10	$79.02
4th 1000 Hrs	75.000000	$42.68	$7.50	$1.28	$0.43	$0.00	$9.82	$1.00	$0.00	$0.00	$62.71	$84.05
5th 1000 Hrs	80.000000	$45.53	$7.50	$1.37	$0.46	$0.00	$10.47	$1.00	$0.00	$0.00	$66.33	$89.09
6th 1000 Hrs	85.000000	$48.37	$7.50	$1.45	$0.48	$0.00	$11.13	$1.00	$0.00	$0.00	$69.93	$94.11
7th 1000 Hrs	90.000000	$51.22	$7.50	$1.54	$0.51	$0.00	$11.78	$1.00	$0.00	$0.00	$73.55	$99.16

Special Calculation Note

Other: Health Reimbursement Account

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Lorain

Special Jurisdictional Note

Details

A groundman when directed shall assist a Journeymen in the performance of his/her work on the ground, including the use of hand tools. Under no circumstances shall this classification climb poles, towers, ladders, or work from an elevated platform or bucket truck. This classification shall not perform work normally assigned to an apprentice lineman. There shall be no more than one (1) Groundman for each two (2) Journeyman except when performing DOT Traffic Signal or Highway lighting work where the ratio can be two (2) Groundman for each Journeyman or Operator.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 71 DOT Traffic Signal Highway Lighting Cleveland	LCN01-2026ib	Electrical	01/21/2026	01/21/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Electrical Lineman	$45.50		$7.50	$1.37	$0.46	$0.00	$10.01	$0.75	$0.00	$0.00	$65.59	$88.34
Traffic Signal & Lighting Journeyman	$45.50		$7.50	$1.37	$0.46	$0.00	$10.01	$0.75	$0.00	$0.00	$65.59	$88.34
Equipment Operator	$41.32		$7.50	$1.24	$0.41	$0.00	$9.09	$0.75	$0.00	$0.00	$60.31	$80.97
Groundman 0 to 1 Year	$27.06		$7.50	$0.81	$0.27	$0.00	$5.95	$0.75	$0.00	$0.00	$42.34	$55.87
Groundman 1 Year or more	$32.09		$7.50	$0.96	$0.32	$0.00	$7.06	$0.75	$0.00	$0.00	$48.68	$64.73
Traffic Apprentice	**Percent**	**BHR**										
1st 1,000 Hours	60.000000	$27.30	$7.50	$0.82	$0.27	$0.00	$6.01	$0.75	$0.00	$0.00	$42.65	$56.30
2nd 1,000 Hours	65.000000	$29.57	$7.50	$0.89	$0.30	$0.00	$6.51	$0.75	$0.00	$0.00	$45.52	$60.31
3rd 1,000 Hours	70.000000	$31.85	$7.50	$0.96	$0.32	$0.00	$7.01	$0.75	$0.00	$0.00	$48.39	$64.31
4th 1,000 Hours	75.000000	$34.13	$7.50	$1.02	$0.34	$0.00	$7.51	$0.75	$0.00	$0.00	$51.25	$68.31
5th 1,000 Hours	80.000000	$36.40	$7.50	$1.09	$0.36	$0.00	$8.01	$0.75	$0.00	$0.00	$54.11	$72.31
6th 1,000 Hours	90.000000	$40.95	$7.50	$1.23	$0.41	$0.00	$9.01	$0.75	$0.00	$0.00	$59.85	$80.33

Special Calculation Note

Other: Health Reimburstment Account

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Lorain

Special Jurisdictional Note

Details

A groundman when directed shall assist a Journeymen in the performance of his/her work on the ground, including the use of hand tools. Under no circumstances shall this classification climb poles, towers, ladders, or work from an elevated platform or bucket truck. This classification shall not perform work normally assigned to an apprentice lineman. There shall be no more than one (1) Groundman for each two (2) Journeyman except when performing DOT Traffic Signal or Highway lighting work where the ratio can be two (2) Groundman for each Journeyman or Operator.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 71 High Tension Pipe Type Cable	LCN01-2026ib	Electrical	01/07/2026	01/07/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Electrical Lineman	$54.94		$7.50	$1.65	$0.55	$0.00	$13.19	$1.00	$0.00	$0.00	$78.83	$106.30
Certified Lineman Welder	$54.94		$7.50	$1.65	$0.55	$0.00	$13.19	$1.00	$0.00	$0.00	$78.83	$106.30
Certified Cable Splicer	$54.94		$7.50	$1.65	$0.55	$0.00	$13.19	$1.00	$0.00	$0.00	$78.83	$106.30
Operator A	$49.20		$7.50	$1.48	$0.49	$0.00	$11.81	$1.00	$0.00	$0.00	$71.48	$96.08
Operator B	$43.52		$7.50	$1.31	$0.44	$0.00	$10.44	$1.00	$0.00	$0.00	$64.21	$85.97
Operator C	$34.93		$7.50	$1.05	$0.35	$0.00	$8.38	$1.00	$0.00	$0.00	$53.21	$70.67
Groundman 0-12 months Exp	$27.47		$7.50	$0.82	$0.27	$0.00	$6.59	$1.00	$0.00	$0.00	$43.65	$57.38
Groundman 0-12 months Exp w/CDL	$30.22		$7.50	$0.91	$0.30	$0.00	$7.25	$1.00	$0.00	$0.00	$47.18	$62.29
Groundman 1 yr or more	$30.22		$7.50	$0.91	$0.30	$0.00	$7.25	$1.00	$0.00	$0.00	$47.18	$62.29
Groundman 1 yr or more w/CDL	$35.71		$7.50	$1.07	$0.36	$0.00	$8.57	$1.00	$0.00	$0.00	$54.21	$72.06
Equipment Mechanic A	$43.52		$7.50	$1.31	$0.44	$0.00	$10.44	$1.00	$0.00	$0.00	$64.21	$85.97
Equipment Mechanic B	$39.22		$7.50	$1.18	$0.39	$0.00	$9.41	$1.00	$0.00	$0.00	$58.70	$78.31
Equipment Mechanic C	$34.92		$7.50	$1.05	$0.35	$0.00	$8.38	$1.00	$0.00	$0.00	$53.20	$70.66
X-Ray Technician	$54.94		$7.50	$1.65	$0.55	$0.00	$13.19	$1.00	$0.00	$0.00	$78.83	$106.30
Apprentice	**Percent**	**BHR**										
1st 1000 hrs	60.000000	$32.96	$7.50	$0.99	$0.33	$0.00	$7.91	$1.00	$0.00	$0.00	$50.69	$67.17
2nd 1000 hrs	65.000000	$35.71	$7.50	$1.07	$0.36	$0.00	$8.57	$1.00	$0.00	$0.00	$54.21	$72.06
3rd 1000 hrs	70.000000	$38.46	$7.50	$1.15	$0.38	$0.00	$9.23	$1.00	$0.00	$0.00	$57.72	$76.95
4th 1000 hrs	75.000000	$41.20	$7.50	$1.24	$0.41	$0.00	$9.89	$1.00	$0.00	$0.00	$61.24	$81.84
5th 1000 hrs	80.000000	$43.95	$7.50	$1.32	$0.44	$0.00	$10.55	$1.00	$0.00	$0.00	$64.76	$86.74
6th 1000 hrs	85.000000	$46.70	$7.50	$1.39	$0.47	$0.00	$11.21	$1.00	$0.00	$0.00	$68.27	$91.62
7th 1000 hrs	90.000000	$49.45	$7.50	$1.48	$0.49	$0.00	$11.87	$1.00	$0.00	$0.00	$71.79	$96.52

Special Calculation Note

Other is Health Reimbursement Account

Ratio

1 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Adams, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Delaware, Fairfield, Fayette, Franklin, Gallia, Geauga, Greene, Guernsey, Hamilton, Harrison, Highland, Hocking, Holmes, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Pike, Portage, Preble, Richland, Ross, Scioto, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Vinton, Warren, Washington, Wayne

Special Jurisdictional Note

Details

Operator "A": John Henry Rock Drill, D-6 (or equivalent) and above, Trackhoe Digger, (320 Track excavator), Cranes (greater then 25 tons and less than 45 tons).
Operator "B": Cranes (greater than 6 tons and up to 25 tons), Backhoes, Road Tractor, Dozer up to D-5, Pressure Digger- wheeled or tracked, all Tension wire Stringing equipment.
Operator "C": Trench, Backhoe, Riding type vibratory Compactor, Ground Rod Driver, Boom Truck (6 ton & below), Skid Steer Loaders, Material Handler.

Special Notes:

When Cable Splicer helpers are used, they must be a Journeyman Lineman.

Pipe installation, holiday testing, welding, cable splicing operation of vacuum pumps and cable pulling equipment and all work requiring the use of hand tools shall be done by Journeymen and Apprentices. Pipe coating, manhole preparations and conditioning, nitrogen connections and flowmeter installation shall be done by or under the direct supervision of a Journeyman.

At least two (2) Journeyman Linemen in addition to certified lineman welders shall be employed to install high voltage pipe.

When pulling cable, at least six (6) of the workmen shall be no less than Journeyman classifications. When pumping oil, only Journeyman Lineman or equipment operators shall be permitted to operate degasifying and oil pumping equipment

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 71 Outside Utility Power	LCN01-2026ib	Electrical	01/07/2026	01/07/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Electrical Lineman	$52.03		$7.50	$1.56	$0.52	$0.00	$12.49	$1.00	$0.00	$0.00	$75.10	$101.12
Substation Technician	$52.03		$7.50	$1.56	$0.50	$0.00	$12.49	$1.00	$0.00	$0.00	$75.08	$101.09
Cable Splicer	$54.50		$7.50	$1.64	$0.55	$0.00	$13.08	$1.00	$0.00	$0.00	$78.27	$105.52
Operator A	$46.61		$7.50	$1.40	$0.47	$0.00	$11.19	$1.00	$0.00	$0.00	$68.17	$91.47
Operator B	$41.17		$7.50	$1.23	$0.41	$0.00	$9.87	$1.00	$0.00	$0.00	$61.18	$81.77
Operator C	$33.00		$7.50	$0.99	$0.33	$0.00	$7.92	$1.00	$0.00	$0.00	$50.74	$67.24
Groundman 0-12 months Exp	$26.02		$7.50	$0.78	$0.26	$0.00	$6.24	$1.00	$0.00	$0.00	$41.80	$54.81
Groundman 0-12 months Exp w/CDL	$28.62		$7.50	$0.86	$0.29	$0.00	$6.87	$1.00	$0.00	$0.00	$45.14	$59.45
Groundman 1 yr or more	$28.62		$7.50	$0.86	$0.29	$0.00	$6.87	$1.00	$0.00	$0.00	$45.14	$59.45
Groundman 1 yr or more w/CDL	$33.82		$7.50	$1.01	$0.34	$0.00	$8.12	$1.00	$0.00	$0.00	$51.79	$68.70
Equipment Mechanic A	$41.17		$7.50	$1.23	$0.41	$0.00	$9.87	$1.00	$0.00	$0.00	$61.18	$81.77
Equipment Mechanic B	$37.09		$7.50	$1.11	$0.37	$0.00	$8.90	$1.00	$0.00	$0.00	$55.97	$74.52
Equipment Mechanic C	$33.00		$7.50	$0.99	$0.33	$0.00	$7.92	$1.00	$0.00	$0.00	$50.74	$67.24
Line Truck w/auger	$36.40		$7.50	$1.09	$0.36	$0.00	$8.71	$1.00	$0.00	$0.00	$55.06	$73.26
Apprentice	**Percent**	**BHR**										
1st 1000 hrs	60.000000	$31.22	$7.50	$0.94	$0.31	$0.00	$7.49	$1.00	$0.00	$0.00	$48.46	$64.07
2nd 1000 hrs	65.000000	$33.82	$7.50	$1.01	$0.34	$0.00	$8.12	$1.00	$0.00	$0.00	$51.79	$68.70
3rd 1000 hrs	70.000000	$36.42	$7.50	$1.09	$0.36	$0.00	$8.74	$1.00	$0.00	$0.00	$55.11	$73.32
4th 1000 hrs	75.000000	$39.02	$7.50	$1.17	$0.39	$0.00	$9.37	$1.00	$0.00	$0.00	$58.45	$77.96
5th 1000 hrs	80.000000	$41.62	$7.50	$1.25	$0.44	$0.00	$9.99	$1.00	$0.00	$0.00	$61.80	$82.61
6th 1000 hrs	85.000000	$44.23	$7.50	$1.33	$0.44	$0.00	$10.61	$1.00	$0.00	$0.00	$65.11	$87.22
7th 1000 hrs	90.000000	$46.83	$7.50	$1.40	$0.47	$0.00	$11.24	$1.00	$0.00	$0.00	$68.44	$91.86

Special Calculation Note

Other: Health Reimbursement Account

Ratio

(1) Journeyman Lineman to (1) Apprentice

Jurisdiction (* denotes special jurisdictional note)

Adams, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Delaware, Fairfield, Fayette, Franklin, Gallia, Geauga, Greene, Guernsey, Hamilton, Harrison, Highland, Hocking, Holmes, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Pike, Portage, Preble, Richland, Ross, Scioto, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Vinton, Warren, Washington, Wayne

Special Jurisdictional Note

Details

Operator "A": John Henry Rock Drill, D-6 (or equivalent) and above, Trackhoe Digger, (320 Track excavator), Cranes (greater then 25 tons and less than 45 tons).
Operator "B": Cranes (greater than 6 tons and up to 25 tons), Backhoes, Road Tractor, Dozer up to D-5, Pressure Digger- wheeled or tracked, all Tension wire Stringing equipment.
Operator "C": Trench, Backhoe, Riding type vibratory Compactor, Ground Rod Driver, Boom Truck (6 ton & below), Skid Steer Loaders, Material Handler.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 71 Underground Residential Distribution	LCN01-2026ib	Electrical	01/07/2026	01/07/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
URD Electrican	$39.42		$7.50	$1.18	$0.39	$0.00	$9.43	$1.00	$0.00	$0.00	$58.92	$78.63
Equipment Operator A	$35.24		$7.50	$1.06	$0.35	$0.00	$8.46	$1.00	$0.00	$0.00	$53.61	$71.23
Equipment Operator B	$32.34		$7.50	$0.97	$0.32	$0.00	$7.76	$1.00	$0.00	$0.00	$49.89	$66.06
Directional Drill Locator	$35.24		$7.50	$1.06	$0.35	$0.00	$8.46	$1.00	$0.00	$0.00	$53.61	$71.23
Directional Drill Operator	$32.34		$7.50	$0.97	$0.32	$0.00	$7.76	$1.00	$0.00	$0.00	$49.89	$66.06
Groundman 0-12 months Exp	$25.50		$7.50	$0.77	$0.26	$0.00	$6.12	$1.00	$0.00	$0.00	$41.15	$53.90
Groundman 0-12 months Exp w/CDL	$28.15		$7.50	$0.84	$0.28	$0.00	$6.76	$1.00	$0.00	$0.00	$44.53	$58.60
Groundman 1 yr or more	$28.15		$7.50	$0.84	$0.28	$0.00	$6.76	$1.00	$0.00	$0.00	$44.53	$58.60
Groundman 1 yr or more w/CDL	$33.47		$7.50	$1.00	$0.33	$0.00	$8.03	$1.00	$0.00	$0.00	$51.33	$68.06
Apprentice	**Percent**	**BHR**										
1st 1000 hrs	80.000000	$31.54	$7.50	$0.95	$0.32	$0.00	$7.57	$1.00	$0.00	$0.00	$48.88	$64.65
2nd 1000 hrs	85.000000	$33.51	$7.50	$1.01	$0.34	$0.00	$8.04	$1.00	$0.00	$0.00	$51.40	$68.16
3rd 1000 hrs	90.000000	$35.48	$7.50	$1.06	$0.35	$0.00	$8.51	$1.00	$0.00	$0.00	$53.90	$71.64
4th 1000 hrs	95.000000	$37.45	$7.50	$1.12	$0.37	$0.00	$8.99	$1.00	$0.00	$0.00	$56.43	$75.16

Special Calculation Note

Other: Health Reimburstment Account

Ratio

(1) Journeyman Lineman to (1) Apprentice

Jurisdiction (* denotes special jurisdictional note)

Adams, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Delaware, Fairfield, Fayette, Franklin, Gallia, Geauga, Greene, Guernsey, Hamilton, Harrison, Highland, Hocking, Holmes, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Pike, Portage, Preble, Richland, Ross, Scioto, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Vinton, Warren, Washington, Wayne

Special Jurisdictional Note

Details

This work applies to projects designated for any outside Underground Residential Distribution construction work for electrical utilities, municipalities and rural electrification projects.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 71 Voice Data Video Outside	LCN02-2024ib	Electrical	03/06/2024	03/06/2024

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Electrical Installer Technician I	$35.39		$7.25	$1.06	$0.00	$0.00	$1.77	$0.00	$0.00	$0.00	$45.47	$63.17
Installer Technician II	$33.37		$7.25	$1.00	$0.00	$0.00	$1.67	$0.00	$0.00	$0.00	$43.29	$59.98
Installer Repairman	$33.37		$7.25	$1.00	$0.00	$0.00	$1.67	$0.00	$0.00	$0.00	$43.29	$59.98
Equipment Operator II	$24.98		$7.25	$0.75	$0.00	$0.00	$1.25	$0.00	$0.00	$0.00	$34.23	$46.72
Cable Splicer	$35.39		$7.25	$1.06	$0.00	$0.00	$1.77	$0.00	$0.00	$0.00	$45.47	$63.17
Ground Driver W/CDL	$16.69		$7.25	$0.50	$0.00	$0.00	$0.83	$0.00	$0.00	$0.00	$25.27	$33.62
Groundman	$14.57		$7.25	$0.44	$0.00	$0.00	$0.73	$0.00	$0.00	$0.00	$22.99	$30.28
Trainees	**Percent**	**BHR**										
Trainee F	50.010000	$17.70	$7.25	$0.53	$0.00	$0.89	$0.00	$0.00	$0.00	$0.00	$26.37	$35.22
Trainee E	58.000000	$20.53	$7.25	$0.62	$0.00	$1.03	$0.00	$0.00	$0.00	$0.00	$29.43	$39.69
Trainee D	66.000000	$23.36	$7.25	$0.70	$0.00	$1.17	$0.00	$0.00	$0.00	$0.00	$32.48	$44.16
Trainee C	74.000000	$26.19	$7.25	$0.79	$0.00	$1.31	$0.00	$0.00	$0.00	$0.00	$35.54	$48.63
Trainee B	82.000000	$29.02	$7.25	$0.87	$0.00	$1.45	$0.00	$0.00	$0.00	$0.00	$38.59	$53.10
Trainee A	90.000000	$31.85	$7.25	$0.96	$0.00	$1.59	$0.00	$0.00	$0.00	$0.00	$41.65	$57.58

Special Calculation Note

Ratio

1Trainee to 1 Journeyman

Jurisdiction (* denotes special jurisdictional note)

Adams, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Delaware, Fairfield, Fayette, Franklin, Gallia, Geauga, Greene, Guernsey, Hamilton, Harrison, Highland, Hocking, Holmes, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Pike, Portage, Preble, Richland, Ross, Scioto, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Vinton, Warren, Washington, Wayne

Special Jurisdictional Note

Details

Cable Splicer: Inspect and test lines or cables, analyze results, and evaluate transmission characteristics. Cover conductors with insulation or seal splices with moisture-proof covering. Install, splice, test, and repair cables using tools or mechanical equipment. This will include the splicing of fiber. Installer Technician I: Must know all aspects of telephone and cable work. This is to include aerial, underground, and manhole work. Must know how to climb and run bucket. Must have all the tools required to perform these tasks. Must be able to be responsible for the safety of the crew at all times. Must also have CDL license and have at least 5 years experience. Installer Repairman: Perform tasks of repairing, installing, and testing phone and CATV services. Installer Technician II: Have at least three years of telephone and CATV experience. Must have the knowledge of underground, aerial, and manhole work. Must be able to climb and operate bucket. Must have CDL. Must have all tools needed to perform these tasks. Equipment Operator II: Able to operate a digger derrick or bucket truck. Have at least 3 years of experience and must have a valid CDL license. Groundman W/CDL: Must have a valid CDL license and be able to perform tasks such as: climbing poles, pulling down guys, making up material, and getting appropriate tools for the job. Must have at least 5 year's experience. Groundman: Perform tasks such as: climbing poles, pulling down guys, making up material, and getting appropriate tools for the job. Experience 0-5 years.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Elevator Local 17	LCN01-2026ib	Elevator	03/11/2026	03/11/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Elevator Mechanic	$66.52		$16.37	$11.06	$0.85	$5.32	$10.70	$2.50	$0.00	$0.00	$113.32	$146.58
Apprentice	**Percent**	**BHR**										
0-6months Probation	50.000000	$33.26	$0.00	$0.00	$0.00	$2.00	$0.00	$0.00	$0.00	$0.00	$35.26	$51.89
1st year	55.000000	$36.59	$16.37	$11.06	$0.85	$2.20	$10.70	$1.38	$0.00	$0.00	$79.15	$97.45
2nd year	65.000000	$43.24	$16.37	$11.06	$0.85	$2.59	$10.70	$1.63	$0.00	$0.00	$86.44	$108.06
3rd year	70.000000	$46.56	$16.37	$11.06	$0.85	$2.79	$10.70	$1.75	$0.00	$0.00	$90.08	$113.36
4th year	80.000000	$53.22	$16.37	$11.06	$0.85	$3.19	$10.70	$2.00	$0.00	$0.00	$97.39	$124.00
Assistant Mechanic	80.000000	$53.22	$16.37	$11.06	$0.85	$4.26	$10.70	$2.00	$0.00	$0.00	$98.46	$125.07
Helper	70.000000	$46.56	$16.37	$11.06	$0.85	$3.72	$10.70	$1.75	$0.00	$0.00	$91.01	$114.29

Special Calculation Note

Vacation: 6% for employees under 5 years based on regular hourly rate for all hours worked, 8% for employees over 5 years based on regular hourly rate for all hours worked.

Other: Holiday Pay

Ratio

1 Journeyman to 1 Apprentice
1 Journeyman to 1 Helper
1 Journeyman to 1 Assistant Mechanic

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Erie, Geauga, Lake, Lorain

Special Jurisdictional Note

Details

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Glazier Local 181	LCN01-2026ib	Glazier	06/17/2026	06/17/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Glazier	$38.00		$9.92	$12.60	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$60.97	$79.97
Apprentice	**Percent**	**BHR**										
1st Year	65.000000	$24.70	$9.92	$1.02	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$36.09	$48.44
2nd Year	70.000000	$26.60	$9.92	$3.52	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$40.49	$53.79
3rd Year	80.000000	$30.40	$9.92	$7.69	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$48.46	$63.66
4th Year	90.000000	$34.20	$9.92	$8.53	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$53.10	$70.20

Special Calculation Note

High Pay: All work is defined for the purpose of the agreement as being work which requires that the employee be supported by equipment that hangs from or suspends from the wall or roof of a building or structure. This work shall receive and additional $1.50 per hour.

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Erie*, Geauga, Huron, Lake, Lorain, Medina*, Portage*, Summit*

Special Jurisdictional Note

Start at the intersection of Route 305 and the eastern boundary line of Portage County. Follow Route 305 west onto Route 82, follow Route 82 west to the intersection of Routes 82, 8 and 271, follow Route 271 south to Medina County line west to Route 94, follow Route 94 south to Route 303, follow Route 303 west to Route 252, follow Route 252 south to Route 18, follow Route 18 west to Route 301, follow 301 south to Route 162, follow Route 162 west to Route 58, follow Route 58 south to the Ashland County line, follow the Ashland County line. The eastern part of Route 4 north to Lake Erie is the jurisdiction of Local 181. Local 181 has the jurisdiction on all projects built on the property which borders on the above Routes and/or intersections, wherever a County line is the divider between Local 181 and another Union, the jurisdiction is only to the county line.

Details

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Ironworker Local 17	LCN01-2026ib	Ironworker	05/01/2026	04/29/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	BHR											
Ironworker	$39.48		$9.14	$10.00	$0.72	$2.50	$8.00	$0.00	$0.00	$0.00	$69.84	$89.58
Apprentice	Percent	BHR										
1st Year - 1st 6 Months	60.000000	$23.69	$9.14	$10.00	$0.72	$2.50	$8.00	$0.00	$0.00	$0.00	$54.05	$65.90
1st Year - 2nd 6 Months	65.000000	$25.66	$9.14	$10.00	$0.72	$2.50	$8.00	$0.00	$0.00	$0.00	$56.02	$68.85
2nd Year - 1st 6 Months	70.000000	$27.64	$9.14	$10.00	$0.72	$2.50	$8.00	$0.00	$0.00	$0.00	$58.00	$71.82
2nd Year - 2nd 6 Months	75.000000	$29.61	$9.14	$10.00	$0.72	$2.50	$8.00	$0.00	$0.00	$0.00	$59.97	$74.78
3rd Year - 1st 6 Months	80.000000	$31.58	$9.14	$10.00	$0.72	$2.50	$8.00	$0.00	$0.00	$0.00	$61.94	$77.73
3rd Year - 2nd 6 Months	85.000000	$33.56	$9.14	$10.00	$0.72	$2.50	$8.00	$0.00	$0.00	$0.00	$63.92	$80.70
4th Year - 1st 6 Months	90.000000	$35.53	$9.14	$10.00	$0.72	$2.50	$8.00	$0.00	$0.00	$0.00	$65.89	$83.66
4th Year - 2nd 6 Months	95.000000	$37.51	$9.14	$10.00	$0.72	$2.50	$8.00	$0.00	$0.00	$0.00	$67.87	$86.63

Special Calculation Note

Ratio

4 Journeymen to 1 Apprentice on Structural Work
3 Journeymen to 1 Apprentice on Rod Work
2 Journeymen to 1 Apprentice on Finishing, Steel Sash, Stairway and Ornamental Work
1 Apprentice for every Sheeting Gang
1 Journeymen to 2 Apprentice Roadway Signage and Sound Barriers
2 Journeymen to 2 Apprentice Unloading and Erection of Light Gauge Mental Trusses

Jurisdiction (* denotes special jurisdictional note)

Ashland*, Ashtabula, Cuyahoga, Erie, Geauga, Huron, Lake, Lorain, Medina, Ottawa*, Portage, Summit

Special Jurisdictional Note

WEST BOUNDARY LINE: Sandusky, Ohio - Columbus Avenue north to Sandusky Bay (and/or Lake Erie); Columbus Avenue south to present Route 4; Route 4 south to present Route 99; from Route 99 south to old Route 224 - all territory to the west of the boundary line is to be within the jurisdiction of Local Union No.55, Toledo, Ohio. All territory to the east of the boundary line is to be within the jurisdiction of Local Union No. 17, Cleveland, Ohio. Kelly's Island is to be within the jurisdiction of Local
Union No. 17, Cleveland, Ohio. All bridges, tunnels, viaducts, etc., relative to these boundary lines shall be under the jurisdiction of Local Union No. 17, Cleveland, Ohio.

EAST BOUNDARY LINE: Ashtabula, Ohio - All territory from the Geauga County Line on the West boundary North of State Route 6 and West of State Route 11 and North of Interstate Route 90 to the Pennsylvania Line on the East boundary shall fall under the jurisdiction of Local Union No. 17, Cleveland, Ohio.

SOUTH BOUNDARY LINE: Canton, Ohio - All territory north of old Route 224 line to be within the jurisdiction of Local Union No. 17, Cleveland, Ohio. All bridges, tunnels, viaducts, signs, etc., relative to old Route 224 line to be within the jurisdiction of Local Union No. 17, Cleveland, Ohio. All territory south of old Route 224 line is to be within the jurisdiction of Local Union No. 550, Canton, Ohio, except for everything within the city limits of Barberton, Ohio, which shall be under the jurisdiction of Local Union No. 17, Cleveland, Ohio.

SOUTHEAST BOUNDARY: West of a line from Middlefield to Shalersville to Deerfield, shall be under the jurisdiction of Local Union No.
17, Cleveland, Ohio. East of a line from Middlefield, to Shalersville to Deerfield, shall be under the jurisdiction of Local Union No.
207, Youngstown, Ohio. Local Union No. 17, Cleveland, Ohio and Local Union No. 207, Youngstown, Ohio has agreed that the Ohio County of Ashtabula, shall be as follows: Ashtabula County in Ohio-All territory from the Portage County Line on the West boundary South of State Route 6 and East of State Route 11 and South of Interstate Route 90 to the Pennsylvania Line on the East boundary shall fall under the jurisdiction of Local Union 207, Youngstown, Ohio. Everything south, starting at the Geauga County line, shall be under the jurisdiction of Local Union No. 207, Youngstown, Ohio.

NORTH BOUNDARY: The east boundary line and the west boundary line continuing north half-way across Lake Erie.

Details

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Labor HevHwy 1A	LCN01-2026ib	Laborer	05/01/2026	04/29/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Laborer Group 1	$40.43		$9.45	$4.60	$0.45	$0.00	$2.50	$0.00	$0.10	$0.00	$57.53	$77.75
Group 2	$40.60		$9.45	$4.60	$0.45	$0.00	$2.50	$0.00	$0.10	$0.00	$57.70	$78.00
Group 3	$40.93		$9.45	$4.60	$0.45	$0.00	$2.50	$0.00	$0.10	$0.00	$58.03	$78.50
Group 4	$41.38		$9.45	$4.60	$0.45	$0.00	$2.50	$0.00	$0.10	$0.00	$58.48	$79.17
Watch Person	$32.00		$9.45	$4.60	$0.45	$0.00	$2.50	$0.00	$0.10	$0.00	$49.10	$65.10
Apprentice	**Percent**	**BHR**										
0-1000 hrs	80.000000	$32.34	$9.45	$4.60	$0.45	$0.00	$2.50	$0.00	$0.10	$0.00	$49.44	$65.61
1001-2000 hrs	85.000000	$34.37	$9.45	$4.60	$0.45	$0.00	$2.50	$0.00	$0.10	$0.00	$51.47	$68.66
2001-3000 hrs	90.000000	$36.39	$9.45	$4.60	$0.45	$0.00	$2.50	$0.00	$0.10	$0.00	$53.49	$71.69
3001-4000 hrs	95.000000	$38.41	$9.45	$4.60	$0.45	$0.00	$2.50	$0.00	$0.10	$0.00	$55.51	$74.72
More than 4000 hrs	100.000000	$40.43	$9.45	$4.60	$0.45	$0.00	$2.50	$0.00	$0.10	$0.00	$57.53	$77.75

Special Calculation Note

Tunnel Laborer rate with air-pressurized add $1.00 to the above wage rate.

Commercial Driver's License – Any Laborer required to utilize a valid Commercial Driver's License (CDL), are in compliance with necessary FMCSA regulations and approved by the Contractor to operate a Commercial Motor Vehicle (CMV), shall be paid one dollar ($1.00) per hour above the base rate for the entirety of their working shift.

Ratio

1 Journeymen to 1 Apprentice
3 Journeymen to 1 Apprentice thereafter

*Watchman have no apprentices

Jurisdiction (* denotes special jurisdictional note)

Lake

Special Jurisdictional Note

Hod Carriers and Common Laborers - Heavy, Highway, Sewer, Waterworks, Utility, Airport, Railroad, Industrial and Building Site, Sewer Plant, Waste Water Treatment Facilities Construction

Details

Group 1 Laborer (Construction); Plant Laborer or Yardman, Right-of-way Laborer, Landscape Laborer, Highway Lighting Worker, Signalization Worker, (Swimming) Pool Construction Laborer, Utility Man, *Bridge Man, Handyman, Joint Setter, Flag person, Carpenter Helper, Waterproofing Laborer, Slurry Seal, Seal Coating, Surface Treatment or Road Mix Laborer, Riprap Laborer & Grouter, Asphalt Laborer, Dump Man (batch trucks), Guardrail & Fence Installer, Mesh Handler & Placer, Concrete Curing Applicator, Scaffold Erector, Sign Installer, Hazardous Waste (level D), Diver Helper, Zone Person and Traffic Control. *Bridge Man will perform work as per the October 31, 1949, memorandum on concrete forms, by and between the United Brotherhood of Carpenters and Joiners of America and the Laborers' International Union of North America, which states in; "the moving, cleaning, oiling and carrying to the next point of erection, and the stripping of forms which are not to be re-used, and forms on all flat arch work shall be done by members of the Laborers' International Union of North America."

Group 2 Asphalt Raker, Screwman or Paver, Concrete Puddler, Kettle Man (pipeline), All Machine-Driven Tools (Gas, Electric, Air), Mason Tender, Brick Paver, Mortar Mixer, Skid Steer, Sheeting & Shoring Person, Surface Grinder Person, Screed person, Water Blast, Hand Held Wand, Power Buggy or Power Wheelbarrow, Paint Striper, Plastic fusing Machine Operator, Rodding Machine Operator, Pug Mill Operator, Operator of All Vacuum Devices Wet or Dry, Handling of all Pumps 4 inches and under (gas, air or electric), Diver, Form Setter, Bottom Person, Welder Helper (pipeline), Concrete Saw Person, Cutting with Burning Torch, Pipe Layer, Hand Spiker (railroad), Underground Person (working in sewer and waterline, cleaning, repairing and reconditioning). Tunnel Laborer (without air),Caisson, Cofferdam (below 25 feet deep), Air Track and Wagon Drill, Sandblaster Nozzle Person, Hazardous Waste (level B), ***Lead Abatement, Hazardous Waste (level C) ***Includes the erecting of structures for the removal, including the encapsulation and containment of Lead abatement process.

Group 3 Blast and Powder Person, Muckers will be defined as shovel men working directly with the miners, Wrencher (mechanical joints & utility pipeline), Yarner, Top Lander, Hazardous Waste (level A), Concrete Specialist, Curb Setter and Cutter, Grade Checker, Concrete Crew in Tunnels. Utility pipeline Tappers, Waterline, Caulker, Signal Person will receive the rate equal to the rate paid the Laborer classification for which the Laborer is signaling.

Group 4 Miner, Welder, Gunite Nozzle Person A.) The Watchperson shall be responsible to patrol and maintain a safe traffic zone including but not limited to barrels, cones, signs, arrow boards, message boards etc. The responsibility of a watchperson is to see that the equipment, job and office trailer etc. are secure.

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Labor Local 310	LCN01-2026ib	Laborer	05/06/2026	05/06/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	BHR											
Laborer Group 1	$34.53		$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$58.38	$75.65
Group 2	$35.01		$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$58.86	$76.37
Group 3	$34.78		$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$58.63	$76.02
Group 4	$31.43		$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$55.28	$71.00
Group 5	$28.93		$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$52.78	$67.25
Group 6	$31.08		$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$54.93	$70.47
Group 7	$35.03		$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$58.88	$76.40
Group 8	$35.18		$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$59.03	$76.62
Group 9	$29.38		$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$53.23	$67.92
Group 10	$25.38		$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$49.23	$61.92
Group 11	$34.68		$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$58.53	$75.87
Group 12	$34.92		$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$58.77	$76.23
Group 13	$36.03		$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$59.88	$77.90
Apprentice	Percent	BHR										
1-1000 hours	60.000000	$20.72	$9.26	$0.00	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$33.62	$43.98
1001-2000 hours	70.000000	$24.17	$9.26	$5.48	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$42.55	$54.64
2001-3000 hours	80.000000	$27.62	$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$51.47	$65.28
3001-4000 hours	90.000000	$31.08	$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$54.93	$70.47
4001 plus	100.000000	$34.53	$9.26	$10.95	$0.10	$0.00	$3.18	$0.15	$0.00	$0.21	$58.38	$75.65

Special Calculation Note

Other is Supplemental Unemployment Benefit (SUB).

Ratio

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Cuyahoga, Geauga, Lake

Special Jurisdictional Note

Details

Group 1 - Building and construction Laborers and Tenders; Asbestos Removal - hazardous materials; unloading of furniture and fixtures
Group 2 - Gunite Operating (Machines of all type)
Group 3 - Laborers on swinging scaffolds; air track and wagon drill
Group 4 - Drywall stocking and handling
Group 5 - General Landscaping
Group 6 - Final Clean-up (must perform clean-up duties for entire work shift, and excludes demolition work)
Group 7 - Blasters, Shooters, Caissons, Well Cylinder, Cofferdams, Mine Workers without air, acid brick tenders
Group 8 - Top man on free standing radial stack; bellman and bottom man in blast furnace and stove
Group 9 - Sewer jet
Group 10 - Heat tender
Group 11 - Firebrick
Group 12 - Mason tender handling carbon block and bottom block for blast furnace stoves, stacks etc
Group 13 - Lansing Burners

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Operating Engineers - Building Local 18 - Zone I (A)	LCR01-2026ib	Operating Engineer	10/14/2026	10/14/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	BHR											
Operator Group A	$51.61		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$69.06	$94.86
Operator Group B	$51.46		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$68.91	$94.64
Operator Group C	$50.01		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$67.46	$92.47
Operator Group D	$49.23		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$66.68	$91.30
Operator Group E	$48.91		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$66.36	$90.81
Operator Group F	$41.83		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$59.28	$80.19
Master Mechanic	$52.61		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$70.06	$96.36
Lift Director	$52.61		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$70.06	$96.36
Crane 200'-299'	$52.61		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$70.06	$96.36
Crane 300' and over	$53.11		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$70.56	$97.11
Mobile Concrete Pumps 200'-299'r	$52.61		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$70.06	$96.36
Mobile Concrete Pumps 300' and over	$53.11		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$70.56	$97.11
Apprentice	Percent	BHR										
1st Year	59.830000	$30.88	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$48.33	$63.77
2nd Year	69.790000	$36.02	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$53.47	$71.48
3rd Year	79.770000	$41.17	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$58.62	$79.20
4th Year	89.730000	$46.31	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$63.76	$86.92

Special Calculation Note

Other & Misc is Education & Safety and National Training Fund.

Note: There will be a 5% increase for the apprentices on top of the percentages listed above provided they are operating mobile equipment.

Operating Engineers employed on any piece of equipment requiring a Certified Crane Operator (CCO) certification or employed on cranes involved in pile driving operations shall be paid a premium of one dollar ($1.00) per hour in addition to the crane rate or any escalated rate that may be in effect.

Ratio

For every (3) Operating Engineer Journeymen employed by the company ,there may be employed (1) Registered Apprentice. An apprentice, while employed as part of a crew per Article VIII, paragraph77, will not be subject to the apprenticeship ratios in this collective bargaining agreement.

In all the counties within the jurisdiction of this Agreement, crews shall be employed on all truck cranes, power shovels, cranes, rotary drills on caisson work, cableways, draglines, tower derricks, tower cranes, multiple drum pavers, pile driving machines and hoes, standard gauge locomotives, bucket trench machines (over 24" wide) and horizontal directional drills (over 500,000 ft.lbs.thrust). Crews shall consist of an Operating Engineer and an Apprentice/Helper (Oiler) or Signalman on machines, regardless of motive of power, or an Operating Engineer and Fireman on steam machines.

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Erie, Geauga, Huron, Lake, Lorain, Medina

Special Jurisdictional Note

Details

Group A - A-Frames; " Boiler Operators, Compressor Operators, Hydraulic Pumps & Power Pacs when mounted on a crane or regardless of where said equipment is mounted (piggy-back operatotion)"; Boom Trucks (all types); Cableways; Cherry Pickers; Combination - Concrete Mixers & Towers; Concrete Pumps; Cranes (all types); Cranes- compact: Track or rubber over 4000lbs. capacity; Cranes- self erecting: stationary, track or truck (all configurations); Derricks (all types); Draglines; Dredges (dipper, clam or suction) 3-man crew; Elevating Graders or Euclid Loaders; Floating Equipment; Gradalls; Helicopter Operators, hoisting building materials; Helicopter Winch Operators, hoisting building materials; Hoes (All types); Hoists (two or more drums); Lift Slab or Panel Jack Operators; Locomotives (all types); Maintenance Engineers (Maintenance Operators and/or Welder); Mixers, paving (multiple drum); Mobile Concrete Pumps with booms; Panelboards, (all types on site); Pile Drivers; Power Shovels; Robotics Equipment Operator/Mechanic; Rotary Drills (all), used on caissons work, wells (all types), Geothermal work and sub-structure work; Rough Terrain Forklifts with Winch/Hoist (when used as a crane); Side Booms; Slip Form Pavers; Straddle Carriers (Building Construction on site); Trench Machines (over 24" wide); Tug Boats; Tunnel Boring Machine (TBM).

Group B - Asphalt Pavers; Bulldozers; CMI type Equipment; End Loaders; Horizontal Directional Drill Locator; Horizontal Directional Drill Operator; Instrument Man; Kolman-type Loaders (Dirt Loading); Lead Greasemen; Mucking Machines; Power Graders; Power Scoops; Power Scrapers; Push Cats; Rotomills; Vermeer Type Concrete Saw.

Group C - Air Compressors, Pressurizing Shafts or Tunnels; Articulating/Straight bed end dumps if assigned by the employer (minus $4.00 per hour from Group C); All Asphalt Rollers; Fork Lifts; Hoists (with one drum); House Elevators (except those automatic call button controlled); Hydro Excavator (all types C rate) (F rate if a second person is needed) Helper rate; Laser Screeds and like equipment; Man Lifts; Modular Moving and Placement machine (C Rate) (F Rate if second person is needed); Mud Jacks; Portable Hydraulic Gantry (lift system C rate) (F Rate if a second person is needed); Power Boilers (over 15 lbs. pressure); Pump Operators (installing or operating Well Points or other types of Dewatering Systems); Pressure Grouting; Trenchers (24" and under); Utility Operators.

Group D – Brokks with a manufacture's weight of 3,500 lbs. and above; Compressors, on building construction; Conveyors, used for handling building materials; Generators; Gunite Machines; Mixers, more than one bag capacity; Mixers, one bag capacity (side loader); Pavement Breakers (hydraulic or cable); Post Drivers; Post Hole Diggers; Road Widening Trenchers; Rollers; Welder Operators.

Group E - Backfillers and Tampers; Batch Plants; Bar and Joint Installing Machines; Bull Floats; Burlap and Curing Machines; Cleaning Machine Operator (decontamination included); Clefplanes; Concrete Spreading Machines; Crushers; Deckhands; Drum Fireman (asphalt); Farm-type, Tractor, pulling attachments; Finishing Machines; Forklifts (masonry work only); Form Trenchers; High Pressure Pumps (over 1/2" discharge); Hydro Seeders; Pumps (4" and over discharge), provided it is not part of a de-watering system discharged into a common header; Self-Propelled Power Spreaders; Self-Propelled Sub Graders; Submersible Pump (4" and over discharge), provided it is not part of a dewatering system discharged into a common header; Tire Repairman; Tractors, pulling sheepsfoot rollers or graders; Vibratory Compactors with integral power.

Group F - Apprentice/Helpers, Oiler, Signalmen; Barrier Moving Machines (additional duty, paid same rate); Bobcat-type and/or Skid Steer Loader; Bobcat-type and/or Skid Steer Loader with any and all attachments; Brokks with a manufacture's weight less than 3,500 lbs.; Cranes – compact, track or rubber under 4000 lbs. capacity; Geodimeter; Grade Checker; Grinders (all); Inboard/Outboard Motor Boat Launches; Light Plant Operators; Planers (all types); Power Boilers (less than 15 lbs. pressure); Power Driven Heaters (oil fired); Power Scrubbers; Power Sweepers; Pumps (under 4 inch discharge); Rod Man; Rotomills; Saw (concrete Vermeer-type); Submersible Pumps (under 4 inch discharge); Vac Alls; Cutting, burning and fabricating on equipment and their attachments.

Master Mechanic - Master Mechanic

Crane 200'-299' - Boom & Jib 200' feet and over Crane 300' and Over - Boom & Jib 300' and over

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Operating Engineers - HevHwy Zone I	LCR01-2026ib	Operating Engineer	10/14/2026	10/14/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Operator Class A	$48.78		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$66.23	$90.62
Operator Class B	$48.68		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$66.13	$90.47
Operator Class C	$47.64		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$65.09	$88.91
Operator Class D	$46.42		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$63.87	$87.08
Operator Class E	$41.13		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$58.58	$79.15
Master Mechanic	$49.78		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$67.23	$92.12
Lift Director	$49.78		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$67.23	$92.12
Crane and Mobile Concrete Pump 150' - 179'	$49.28		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$66.73	$91.37
Crane and Mobile Concrete Pump 180' - 249'	$49.78		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$67.23	$92.12
Crane and Mobile Concrete Pump 250' and Over	$50.03		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$67.48	$92.50
Apprentice	**Percent**	**BHR**										
1st Year	50.000000	$24.39	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$41.84	$54.03
2nd Year	60.000000	$29.27	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$46.72	$61.36
3rd Year	70.000000	$34.15	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$51.60	$68.67
4th Year	80.000000	$39.02	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$56.47	$75.98
Field Mech Trainee												
1st Year	60.000000	$29.27	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.00	$46.62	$61.25
2nd Year	70.000000	$34.15	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.00	$51.50	$68.57
3rd Year	80.000000	$39.02	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.00	$56.37	$75.88
4th Year	90.000000	$43.90	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.00	$61.25	$83.20

Special Calculation Note

Other: Education & Safety Fund
Misc: National Training

**Apprentices will receive a 10% increase on top of the percentages listed above provided they are operating mobile equipment.

Ratio

For every (3) Operating Engineer Journeymen employed by the company, there may be employed (1) Registered Apprentice or Trainee Engineer through the referral when they are available. An Apprentice, while employed as part of a crew per Article VIII, paragraph 68 will not be subject to the apprenticeship ratios in this collective bargaining agreement

In all of the counties within the jurisdiction of this Agreement, crews (meaning an Operating Engineer and an Apprentice/Helper (Oiler), or Signalman on gas or diesel machines, or an Operating Engineer and Fireman on steam machines) shall be employed on all truck cranes, power shovels, cranes, rotary drill on caisson work, cableways, draglines, tower derricks, tower cranes, multiple drum pavers, piledriving machines and hoes, standard gauge locomotives and bucket trench machines (over 24" wide).

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Erie, Geauga, Lake, Lorain, Medina, Portage, Summit

Special Jurisdictional Note

Details

Class A - Air Compressors on Steel Erection; Asphalt Plant Engineers (Cleveland District Only); Barrier Moving Machine; Boiler Operators, Compressor Operators, or Generators, when mounted on a rig; Boom Trucks (all types); Cableways; Cherry Pickers; Combination- Concrete Mixers & Towers; Concrete Plants (over 4 yd capacity); Concrete Pumps; Cranes (all types); Compact Cranes track or rubber over 4,000 pounds capacity; Cranes self-erecting stationary, track or truck; Derricks (all types); Draglines; Dredges dipper, clam or suction; Elevating Graders or Euclid Loaders; Floating Equipment (all types); Gradalls; Helicopter Crew (Operator- hoist or winch); Hoes (all types); Hoisting Engines; Hoisting Engines, on shaft or tunnel work; Hydraulic Gantry (lifting system); Industrial-type Tractors; Jet Engine Dryer (D8 or D9) diesel Tractors; Locomotives (standard gauge); Maintenance Operators/Technicians (class A); Mixers, paving (single or double drum); Mucking Machines; Multiple Scrapers; Piledriving Machines (all types); Power Shovels, Prentice Loader; Quad 9 (double pusher); Rail Tamper (with automatic lifting and aligning device); Refrigerating Machines (freezer operation); Rotary Drills, on caisson work; Rough Terrain Fork Lift with winch/hoist; Side Booms; Slip Form Pavers; Survey Crew Party Chiefs; Tower Derricks; Tree Shredders; Trench Machines (over 24" wide); Truck Mounted Concrete Pumps; Tug Boats; Tunnel Machines and /or Mining Machines; Wheel Excavators.

Class B - Asphalt Pavers; Automatic Subgrade Machines, self-propelled (CMI-type); Bobcat-type and /or Skid Steer Loader with hoe attachment greater than 7000 lbs.; Boring Machine Operators (more than 48 inches); Bulldozers; Concrete Saws, Vermeer type; Endloaders; Horizontal Directional Drill (50,000 ft. lbs. thrust and over); Hydro Milling Machine; Kolman-type Loaders (production type-dirt); Lead Greasemen; Lighting and Traffic Signal Installation Equipment includes all groups or classifications; Maintenance Operators/Technicians, Class B - Material Transfer Equipment (shuttle buggy) Asphalt; Pettibone-Rail Equipment; Power Graders; Power Scrapers; Push Cats; Rotomills (all), Grinders and Planners of all types, Grooves (excluding walk-behinds); Trench Machines (24 inch wide and under).

Class C - A-Frames; Air Compressors, on tunnel work (low Pressure); Articulating/straight bed end dumps if assigned (minus $4.00 per hour); Asphalt Plant Engineers (Portage and Summit Counties only); Bobcat-type and/or skid steer loader with or without attachments; Drones; Highway Drills (all types); HydroVac/Excavator (when a second person is needed, the rate of pay will be "Class E"); Locomotives (narrow gauge); Material Hoist/Elevators; Mixers, concrete (more than one bag capacity); Mixers, one bag capacity (side loader); P ower Boilers (over 15 lbs. pressure); Pump Operators (installing or operating well Points); Pumps (4 inch and over discharge); Railroad Tie Inserter/Remover; Rollers, Asphalt; Rotovator (lime-soil Stabilizer); Switch & Tie Tampers (without lifting and aligning device); Utilities Operators, (small equipment); Welding Machines and Generators.

Class D – Backfillers and Tampers; Ballast Re-locator; Bar and Joint Installing Machines; Batch Plant Operators; Boring Machine Operators (48 inch or less); Bull Floats; Burlap and Curing Machines; Concrete Plants (capacity 4 yds. and under); Concrete Saws (multiple); Conveyors (highway); Crushers; Deckhands; Farm type tractors, with attachments (highway); Finishing Machines; Firemen, Floating Equipment (all types); Fork Lifts (highway), except masonry; Form Trenchers; Hydro Hammers; Hydro Seeders; Pavement Breakers (hydraulic or cable); Plant Mixers; Post Drivers; Post Hole Diggers; Power Brush Burners; Power Form Handling Equipment; Road Widening Trenchers; Rollers (brick, grade, macadam); Self-Propelled Power Spreaders; Self-Propelled Sub-Graders; Steam Firemen; Survey Instrument men; Tractors, pulling sheepsfoot rollers or graders; Vibratory Compactors, with integral power.

Class E - Compressors (portable, Sewer, Heavy and Highway); Cranes-Compact, track or rubber under 4,000 pound capacity; Drum Firemen (asphalt plant); Fueling and greasing (Primary Operator with Specialized CDL Endorsement Add $3.00/hr); Generators; Inboard-Outboard Motor Boat Launches; Masonry Fork Lifts; Oil Heaters (asphalt plant); Oilers/Helpers; Power Driven Heaters (oil fired); Power Scrubbers; Power Sweepers; Pumps (under 4 inch discharge); Signalperson; Survey Rodmen or Chairmen; Tire Repairmen; VAC/ALLS.

Master Mechanic - Master Mechanic

Cranes and Mobile Concrete Pumps 150' -179' - Boom & Jib 150 - 179 feet Cranes and Mobile Concrete Pumps 180' - 249' - Boom & Jib 180 - 249 feet Cranes and Mobile Concrete Pumps 250' and over - Boom & Jib 250 feet or over

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Painter Local 505 Drywall	LCN01-2026ib	Painter	05/01/2026	04/29/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Painter Drywall Finisher	$36.40		$9.92	$7.30	$0.45	$0.00	$4.74	$0.00	$0.00	$0.00	$58.81	$77.01
Apprentice	**Percent**	**BHR**										
1st Year	70.000000	$25.48	$9.92	$2.61	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$38.46	$51.20
2nd Year	80.000000	$29.12	$9.92	$3.28	$0.45	$0.00	$3.79	$0.00	$0.00	$0.00	$46.56	$61.12
3rd Year	90.000000	$32.76	$9.92	$4.08	$0.45	$0.00	$4.27	$0.00	$0.00	$0.00	$51.48	$67.86

Special Calculation Note

Ratio

2 Journeyman to 1 Apprentice
3 Journeyman to 1 Apprentice after 9 total tapers

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Portage*, Summit*

Special Jurisdictional Note

Portage & Summit North of the East-West Turnpike.

Details

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Painter Local 639 Sign and Display	LCN01-2025ib	Painter	06/18/2025	06/18/2025

Wage Rates

		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	BHR										
Top Mechanic Class A	$27.53	$4.50	$0.00	$0.00	$0.00	$0.00	$1.45	$0.00	$0.00	$33.48	$47.25
Top Mechanic Class B	$27.53	$4.50	$0.75	$0.00	$0.53	$0.00	$1.45	$0.00	$0.00	$34.76	$48.53
Top Helper Class A	$22.33	$4.50	$0.00	$0.00	$0.00	$0.00	$1.20	$0.00	$0.00	$28.03	$39.20
Top Helper Class B	$22.33	$4.50	$0.75	$0.00	$0.43	$0.00	$1.20	$0.00	$0.00	$29.21	$40.38
Helper Class A	$17.19	$4.50	$0.00	$0.00	$0.00	$0.00	$0.90	$0.00	$0.00	$22.59	$31.19
Helper Class B	$17.19	$4.50	$0.75	$0.00	$0.30	$0.00	$0.90	$0.00	$0.00	$23.64	$32.24
New Hire (90 Days)	$15.75	$4.50	$0.00	$0.00	$0.00	$0.00	$0.55	$0.00	$0.00	$20.80	$28.68

Special Calculation Note

Other: Sick, Personal & Holiday Pay Swing Stage Rate: Employees shall receive a differential of $1.50 per hour for all hours worked on scaffolds four sections or higher, including any boom lifts and swing stage scaffolds. In addition, the rigging and derigging of hanging/suspended swing stage systems and rappelling/bolson chair work of a single employee will qualify for $1.50 differential, will be paid to a single lead Top Mechanic or single lead Top Helper on any given swing stage job, even when it includes multiple running rigs on a single jobsite.

Ratio

Jurisdiction (* denotes special jurisdictional note)

Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Geauga, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne, Williams, Wood, Wyandot

Special Jurisdictional Note

Details

The work performed by employees covered by this rate shall include cleaning and refinishing of architectural metals using chemicals, solvents, coatings and hand-applied lacquer thinner, removing scratches from mirror finished metals, burnishing of bronze, statuary finishes on exterior and interior surfaces during the course of the restoration and maintenance of architectural metals, and other specialty metal finishing work, and the use of all tools required to perform such work, including but not limited to polishes, spray equipment and scaffolding. Class A: Less Than 1 Year of Service Class B: More Than 1 Year of Service Top Mechanic: Top Mechanic shall be responsible for ensuring the highest quality of workmanship by Helpers, and be highly competent and knowledgeable in the following areas: coatings, both solvent and waterborne, spraying ability, stainless steel, aluminum and bronze finishing, scaffolding and swing stage work. The Top Mechanic shall also be responsible for providing necessary training of employees in lower classifications and for directing all employees in his/her crew to perform their responsibilities in a productive and efficient manner. Top Helper: For existing Top Helpers at the time of this Agreement shall, in addition to performing the responsibilities of a Helper, be responsible and accountable for the setup, breakdown, safety and quality of the Company's product. Helper: A Helper shall be responsible for performing tasks in refinishing, compliance with safety procedures, setting up and breaking down job sites, setting up and breaking down scaffolding and swing stages, preparing surfaces for refinishing, including but not limited to masking and stripping, cleaning, oxidizing, polishing and scratch removal on various finishes.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Painter Local 639 Zone 1 Sign	LCN01-2025ib	Painter	07/30/2025	07/30/2025

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Class A: Painter Sign Erector Service/Pattern/Metal Fab/Neon	$26.28		$8.91	$5.57	$0.25	$0.79	$0.00	$1.10	$0.00	$0.00	$42.90	$56.04
Class B: Painter Sign Erector/Service/Pattern/Metal Fab/Neon	$26.28		$8.91	$5.57	$0.25	$1.58	$0.00	$1.10	$0.00	$0.00	$43.69	$56.83
Class C: Painter Sign Erector/Service/Pattern/Metal Fab/Neon	$26.28		$8.91	$5.57	$0.25	$2.37	$0.00	$1.10	$0.00	$0.00	$44.48	$57.62
Class D: Painter Sign Erector/Service/Pattern/Metal Fab/Neon	$26.28		$8.91	$5.57	$0.25	$3.15	$0.00	$1.10	$0.00	$0.00	$45.26	$58.40
Class A: Computer Operator, Router, Spray Painter/Wood	$24.60		$8.91	$5.57	$0.25	$0.76	$0.00	$1.06	$0.00	$0.00	$41.15	$53.45
Class B: Computer Operator, Router, Spray Painter/Wood	$24.60		$8.91	$5.57	$0.25	$1.51	$0.00	$1.06	$0.00	$0.00	$41.90	$54.20
Class C: Computer Operator, Router, Spray Painter/Wood	$24.60		$8.91	$5.57	$0.25	$2.27	$0.00	$1.06	$0.00	$0.00	$42.66	$54.96
Class D: Computer Operator, Router, Spray Painter/Wood	$24.60		$8.91	$5.57	$0.25	$3.03	$0.00	$1.06	$0.00	$0.00	$43.42	$55.72
Class A: Final Assembly, Helper	$19.62		$8.91	$5.57	$0.25	$0.66	$0.00	$0.92	$0.00	$0.00	$35.93	$45.74
Class B: Final Assembly, Helper	$19.62		$8.91	$5.57	$0.25	$1.32	$0.00	$0.92	$0.00	$0.00	$36.59	$46.40
Class C: Final Assembly, Helper	$19.62		$8.91	$5.57	$0.25	$1.98	$0.00	$0.92	$0.00	$0.00	$37.25	$47.06
Class D: Final Assembly, Helper	$19.62		$8.91	$5.57	$0.25	$2.64	$0.00	$0.92	$0.00	$0.00	$37.91	$47.72
Apprentice	**Percent**	**BHR**										
1-2000 hrs	50.000000	$13.14	$8.91	$5.57	$0.25	$0.00	$0.00	$0.75	$0.00	$0.00	$28.62	$35.19
2001-3000 hrs	55.000000	$14.45	$8.91	$5.57	$0.25	$0.56	$0.00	$0.79	$0.00	$0.00	$30.53	$37.75
3001-4000 hrs	60.000000	$15.77	$8.91	$5.57	$0.25	$0.59	$0.00	$0.82	$0.00	$0.00	$31.91	$39.80
4001-5000 hrs	65.000000	$17.08	$8.91	$5.57	$0.25	$1.22	$0.00	$0.86	$0.00	$0.00	$33.89	$42.43
5001-6000 hrs	70.000000	$18.40	$8.91	$5.57	$0.25	$1.27	$0.00	$0.89	$0.00	$0.00	$35.29	$44.49
6001-7000 hrs	85.000000	$22.34	$8.91	$5.57	$0.25	$1.43	$0.00	$1.00	$0.00	$0.00	$39.50	$50.67
7001-8000 hrs	90.000000	$23.65	$8.91	$5.57	$0.25	$1.48	$0.00	$1.03	$0.00	$0.00	$40.89	$52.71

Special Calculation Note

Other: Holiday Pay
Apprentice Pay Rate should be based on proper Classification.
Any employee working over 100 ft. above the ground shall receive $1.00 per hour additional pay.

Ratio

Jurisdiction (* denotes special jurisdictional note)

Ashland, Ashtabula, Cuyahoga, Geauga, Lake, Medina, Portage, Richland, Summit

Special Jurisdictional Note

Details

Class A Worker: More than 1 year but less that 2 years
Class B Worker: More than 2 years but less than 10 years
Class C Worker: More than 10 years but less that 20 years
Class D Worker: More than 20 years

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Painter Local 707	LCN01-2026ib	Painter	05/01/2026	04/29/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Painter Brush Roll	$37.45		$9.92	$6.08	$0.45	$0.00	$4.75	$0.00	$0.00	$0.00	$58.65	$77.38
Paperhanger	$37.45		$9.92	$6.08	$0.45	$0.00	$4.75	$0.00	$0.00	$0.00	$58.65	$77.38
REPAINT Brush Roll & Paperhanger	$35.95		$9.92	$6.08	$0.45	$0.00	$4.75	$0.00	$0.00	$0.00	$57.15	$75.13
Apprentice	**Percent**	**BHR**										
1st Year	65.000000	$24.34	$9.92	$1.64	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$36.35	$48.52
2nd Year	75.000000	$28.09	$9.92	$2.25	$0.45	$0.00	$3.56	$0.00	$0.00	$0.00	$44.27	$58.31
3rd Year	85.000000	$31.83	$9.92	$2.70	$0.45	$0.00	$4.04	$0.00	$0.00	$0.00	$48.94	$64.85
4th Year	95.000000	$35.58	$9.92	$3.75	$0.45	$0.00	$4.51	$0.00	$0.00	$0.00	$54.21	$72.00

Special Calculation Note

Apprentice pay based on percentage of above appropriate classification.

The following Premiums shall be added to proper classification in full including apprentice rates:

Spray Painting: $.70 per hour
Sandblasting and buffing: $.40 per hour
Height pay (Over 100ft): $.50 per hour
Fiberglass Insulator & Catalytic material applicator: $.70 per hour
Application of Catalytic materials under class 3 hazardous per MSDS- add $.65 per hour
Application of Catalytic materials under class 4 hazardous per MSDS- add $1.00 per hour

Ratio

1 Apprentice to 1 Journeyman

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Portage*, Summit*

Special Jurisdictional Note

Portage & Summit North of the East-West Turnpike.

Details

Repaint: 20% or less of new surfaces. A general contractor holding a construction contract does not constitute the rate of pay. Bridge work, tanks, towers and all work covered by NMA, PLA, GPA is excluded from any repaint rate.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Painter Local 707 HvyHwy	LCN01-2026ib	Painter	05/01/2026	04/29/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Class 1: Bridge Blaster	$43.71		$9.92	$6.08	$0.45	$0.00	$4.75	$0.00	$0.00	$0.00	$64.91	$86.77
Class 2: Bridge Painter, Rigger, Containment Builder, Spot Blaster	$40.71		$9.92	$6.08	$0.45	$0.00	$4.75	$0.00	$0.00	$0.00	$61.91	$82.27
Class 3: Equipment Operator/Field Mechanic, Grit Reclamation, Paint Mixer, Traffic Control Boat Person, Driver (0-5 Years Exp.)	$33.71		$9.92	$6.08	$0.45	$0.00	$4.75	$0.00	$0.00	$0.00	$54.91	$71.77
Class 3: Equipment Operator/Field Mechanic, Grit Reclamation, Paint Mixer, Traffic Control Boat Person, Driver (5 Plus Years Exp.)	$36.71		$9.92	$6.08	$0.45	$0.00	$4.75	$0.00	$0.00	$0.00	$57.91	$76.27
Class 4: Concrete Sealing, Concrete Blasting/Power Washing/Etc	$32.71		$9.92	$6.08	$0.45	$0.00	$4.75	$0.00	$0.00	$0.00	$53.91	$70.27
Class 5: Quality Control/Quality Assurance, Traffic Safety, Competent Person	$36.71		$9.92	$6.08	$0.45	$0.00	$4.75	$0.00	$0.00	$0.00	$57.91	$76.27
Apprentice - Painter	**Percent**	**BHR**										
1st Year	65.000000	$28.41	$9.92	$1.64	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$40.42	$54.63
2nd Year	75.000000	$32.78	$9.92	$2.25	$0.45	$0.00	$3.56	$0.00	$0.00	$0.00	$48.96	$65.35
3rd Year	85.000000	$37.15	$9.92	$2.70	$0.45	$0.00	$4.04	$0.00	$0.00	$0.00	$54.26	$72.83

Special Calculation Note

Apprentice pay based on percentage of above appropriate classification.

Application of Catalytic materials under class 3 hazardous per MSDS- add .65 per hour to the above Job Classification basic hourly rate.
Application of Catalytic materials under class 4 hazardous per MSDS- add 1.00 per hour to the above Job Classification basic hourly rate.

Ratio

1 Apprentice to 1 Journeyman

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Portage*, Summit*

Special Jurisdictional Note

Portage & Summit North of the East-West Turnpike.

Details

Painter Bridge Class 2 is Defined as; Bridge Painter, Rigger, Containment Builder

Concrete Sealing: on highway work, scaling of concrete surfaces, the treating and sealing of bridge decks, the painting and staining of concrete, including the abutments, barricades, noise barriers, lane dividers, etc.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Pipefitter Local 120	LCN01-2026ib	Pipefitter	05/04/2026	04/29/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Pipefitter	$51.02		$13.30	$12.20	$1.32	$0.00	$3.50	$0.20	$0.00	$0.00	$81.54	$107.05
Apprentice	**Percent**	**BHR**										
1st year	48.410000	$24.70	$5.78	$0.00	$1.32	$0.00	$0.00	$0.00	$0.00	$0.00	$31.80	$44.15
2nd year	49.820000	$25.42	$12.43	$7.60	$1.32	$0.00	$0.88	$0.20	$0.00	$0.00	$47.85	$60.56
3rd year	57.880000	$29.53	$12.43	$7.60	$1.32	$0.00	$0.88	$0.20	$0.00	$0.00	$51.96	$66.72
4th year	68.680000	$35.04	$12.43	$7.60	$1.32	$0.00	$0.88	$0.20	$0.00	$0.00	$57.47	$74.99
5th year	76.560000	$39.06	$12.43	$7.60	$1.32	$0.00	$0.88	$0.20	$0.00	$0.00	$61.49	$81.02

Special Calculation Note

OTHER: SUPPLEMENTAL UNEMPLOYMENT BENEFITS

Ratio

1 Journeyman to 1 Apprentice
2-4 Journeymen to 2 Apprentices
5-7 Journeymen to 3 Apprentices
3 to 1 on jobs with 12 or more journeymen

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Medina*, Summit*

Special Jurisdictional Note

Summit County - North of State Route 303 including work within the corporate limits of the City of Hudson, that portion of Medina County North of State Route 18 and Smith Road and including work within the corporate limits of the City of Medina.

Details

Under pipefitter duties shall include - steam and hot water heating boilers and related controls such as automatic feedwater and low water cut-offs, safety relief valves and gas trains; steam regulators, traps, steam valves, steam heaters, steam and hot water heating coils; feedwater lines to boilers, condensate pumps, condensate tanks and related piping to boilers, expansion tanks and controls on hot water heating systems; refrigeration and air conditioning systems that are separate from one another and are connected through piping; install, calibrate and maintain pneumatic temperature controls and piping for heating and cooling devices; piping, pumps and controls on the fluent water system in water treatment plants; hose cabinets and automatic fire sprinkler systems; underground water supply piping and devices; all fire stopping of piping systems; to operate a pipe cutting machine, to thread pipe by machine or hand dies; to do oxyacetylene and electric welding on iron and steel pipes when required; to perform other tasks when assigned.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Pipefitter Local 120 Mechanical Equipment	LCN01-2026ib	Pipefitter	05/04/2026	04/29/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Pipefitter Mechanical Equipment Service A-2	$38.99		$13.30	$12.20	$1.32	$0.00	$3.50	$0.20	$0.00	$0.00	$69.51	$89.00
Pipefitter Mechanical Equipment Service A-1	$34.98		$13.30	$12.20	$1.32	$0.00	$3.50	$0.20	$0.00	$0.00	$65.50	$82.99
MES Trainees	**Percent**	**BHR**										
1st year	56.070000	$21.86	$6.22	$0.00	$1.32	$0.00	$0.00	$0.00	$0.00	$0.00	$29.40	$40.33
2nd year	58.040000	$22.63	$6.22	$5.30	$1.32	$0.00	$1.75	$0.20	$0.00	$0.00	$37.42	$48.73
3rd year	64.220000	$25.04	$6.22	$5.30	$1.32	$0.00	$1.75	$0.20	$0.00	$0.00	$39.83	$52.35
4th year	74.510000	$29.05	$6.22	$5.30	$1.32	$0.00	$1.75	$0.20	$0.00	$0.00	$43.84	$58.37
5th year	80.660000	$31.45	$6.22	$5.30	$1.32	$0.00	$1.75	$0.20	$0.00	$0.00	$46.24	$61.96

Special Calculation Note

OTHER: SUPPLEMENTAL UNEMPLOYMENT BENEFITS

Ratio

A per employer ratio of one (1) unindentured trainee to the first three (3) to fifteen (15) journeymen and/or apprentices shall be established, with a ratio of one (1) unindentured trainee for every fifteen (15) journeymen and/or apprentices thereafter. Each employer shall be limited to three (3) unindentured trainees. At no time shall the number of unindentured trainees exceed the number of apprentices.

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Medina*, Summit*

Special Jurisdictional Note

Summit County - North of State Route 303 including work within the corporate limits of the City of Hudson, that portion of Medina County North of Route 18 and Smith Road and including work within the corporate limits of the City of Medina.

Details

Work scope but not limited to:Mechanical Service and Maintenance work normally performed by contractors, either by contracts or emergency call basis, who are equipped to handle all work relating to evacuation, charging, start-up, inspection, operating, maintenance and service call necessary to keep mechanical system and controls of a refrigeration , air conditioning, heating and/or ventilation or any other newly installed, remodeled, revamped or redesigned mechanical system in operational order; all fire stopping and piping systems. Shall include but not limited to all maintaining, cleaning, adjusting, repairing, overhauling, starting and balancing of any system or component part thereof, regardless of size or location, including all other service and maintenance work assigned to the employer by the customer. Shall also be allowed to do the following installation work: All residential humidifiers and dehumidifiers, all window type units, all residential heating and cooling systems, excluding steam and hot water, and when a building is not new construction, all refrigeration systems up to 20 tons, split air conditioning systems up to 50 tons, and package or self-contained air conditioning units up to 50 tons.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Pipefitter Local 120 Sprinklerfitter	LCN01-2026ib	Sprinkler Fitter	05/04/2026	04/29/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Sprinkler Fitter	$51.02		$13.30	$12.20	$1.32	$0.00	$3.50	$0.20	$0.00	$0.00	$81.54	$107.05
Apprentice	**Percent**	**BHR**										
1st Year	48.410000	$24.70	$5.78	$0.00	$1.32	$0.00	$0.00	$0.00	$0.00	$0.00	$31.80	$44.15
2nd Year	49.820000	$25.42	$12.43	$7.60	$1.32	$0.00	$0.88	$0.20	$0.00	$0.00	$47.85	$60.56
3rd Year	57.680000	$29.43	$12.43	$7.60	$1.32	$0.00	$0.88	$0.20	$0.00	$0.00	$51.86	$66.57
4th Year	68.680000	$35.04	$12.43	$7.60	$1.32	$0.00	$0.88	$0.20	$0.00	$0.00	$57.47	$74.99
5th Year	76.560000	$39.06	$12.43	$7.60	$1.32	$0.00	$0.88	$0.20	$0.00	$0.00	$61.49	$81.02

Special Calculation Note

OTHER: SUPPLEMENTAL UNEMPLOYMENT BENEFITS

Ratio

1 Journeymen to 1 Apprentice
2 - 4 Journeymen to 2 Apprentices
5 - 7 Journeymen to 3 Apprentices
3 Journeymen to 1 Apprentice on jobs with 12 or more journeymen

Jurisdiction (* denotes special jurisdictional note)

Cuyahoga, Geauga, Lake, Lorain

Special Jurisdictional Note

Details

Sprinklerfitter duties shall include: installation, dismantling, maintenance, repairs, adjustments and corrections of all fire protection and extinguishing systems; consist of handling and installing of all piping and appurtenances pertaining to sprinkler equipment including both overhead and underground water mains, fire hydrants and hydrants mains, stand pipes, hose connections, tank heaters, air lines, thermal systems and their connections; all operating and actuating lines and devices and their protective covering; all fire stopping of sprinkler piping systems; all tanks, pumps and city connections; fire protection systems using emulsify, spray, water fog, CO2 gas, foam and other fire control agents, settling of all fire pumps and tank filling pumps, air compressors and their connections; all work related to sprinkler inspections (included but not limited to: adjustments, maintenance, repair, testing, etc.)

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Plasterer Local 526	LCN01-2026ib	Plasterer	05/01/2026	04/29/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Plasterer	$34.71		$9.37	$7.10	$0.50	$0.00	$5.60	$0.21	$0.00	$0.00	$57.49	$74.84
Apprentice	**Percent**	**BHR**										
1st Year	50.000000	$17.36	$9.37	$7.10	$0.50	$0.00	$5.60	$0.21	$0.00	$0.00	$40.14	$48.82
2nd Year	60.000000	$20.83	$9.37	$7.10	$0.50	$0.00	$5.60	$0.21	$0.00	$0.00	$43.61	$54.02
3rd Year	75.000000	$26.03	$9.37	$7.10	$0.50	$0.00	$5.60	$0.21	$0.00	$0.00	$48.81	$61.83
4th Year	90.000000	$31.24	$9.37	$7.10	$0.50	$0.00	$5.60	$0.21	$0.00	$0.00	$54.02	$69.64

Special Calculation Note

Other is for Substance abuse and training.

Ratio

1 Journeymen to 1 Apprentice
3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Lorain

Special Jurisdictional Note

Details

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Plumber Local 55	LCN01-2026ib	Plumber	06/10/2026	06/10/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Plumber	$47.11		$13.37	$9.63	$1.23	$0.00	$7.10	$0.20	$0.00	$0.00	$78.64	$102.19
Shopman (When in the field)	$25.98		$9.79	$5.59	$0.10	$0.00	$3.85	$0.00	$0.00	$0.00	$45.31	$58.30
Apprentice	**Percent**	**BHR**										
1-6 Months	43.910000	$20.69	$7.59	$0.24	$0.95	$0.00	$1.56	$0.00	$0.00	$0.00	$31.03	$41.38
7-12 Months	49.890000	$23.50	$7.84	$0.44	$1.00	$0.00	$2.01	$0.20	$0.00	$0.00	$34.99	$46.74
2nd Year 1-6	53.460000	$25.19	$8.62	$0.85	$1.05	$0.00	$3.06	$0.20	$0.00	$0.00	$38.97	$51.57
2nd Year 7-12	55.670000	$26.23	$8.83	$2.85	$1.05	$0.00	$3.78	$0.20	$0.00	$0.00	$42.94	$56.05
3rd Year 1-6	62.470000	$29.43	$9.38	$2.80	$1.05	$0.00	$4.00	$0.20	$0.00	$0.00	$46.86	$61.57
3rd Year 7-12	67.270000	$31.69	$9.65	$3.63	$1.05	$0.00	$4.62	$0.20	$0.00	$0.00	$50.84	$66.69
4th Year	73.420000	$34.59	$9.92	$4.07	$1.05	$0.00	$4.98	$0.20	$0.00	$0.00	$54.81	$72.11
5th Year	79.630000	$37.51	$10.19	$4.51	$1.05	$0.00	$5.33	$0.20	$0.00	$0.00	$58.79	$77.55

Special Calculation Note

OTHER IS: SUPPLEMENTAL UNEMPLOYMENT

Ratio

1 Journeyman 1 Apprentice
2 Journeymen to 1 Apprentice thereafter

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Medina*, Summit*

Special Jurisdictional Note

Summit County - North of State Route 303 including work within the corporate limits of the City of Hudson, that portion of Medina County North of Route 18 and Smith Road and the corporate limits of the City of Medina.

Details

The Plumber Shopman will have charge of the Employer's shop and warehouse containing plumbing and heating supplies and equipment, and perform such duties as are customarily required by a Plumber or a Plumber's Shopman, including casual delivery of tools and equipment necessary for installation of Plumbing and Heating facilities. One field shopman per shop may be hired after employing the 1st apprentice, and a second field shopman per shop may be hired after employing the 5th apprentice. These shopmen may work in the field performing primarily non-mechanical work. The plumber shopman's duties do not include the installation of plumbing.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Plumber Local 55 Light Commercial	LCN01-2025ib	Plumber	06/10/2026	06/10/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	BHR											
Light Commercial Plumber	$30.76		$9.48	$2.28	$0.69	$0.00	$3.58	$0.20	$0.00	$0.00	$46.99	$62.37
Trainees	Percent	BHR										
0-3 Months	50.020000	$15.39	$0.00	$0.00	$0.50	$0.00	$0.00	$0.00	$0.00	$0.00	$15.89	$23.59
4-6 Months	50.670000	$15.59	$3.82	$0.00	$0.46	$0.00	$0.00	$0.00	$0.00	$0.00	$19.87	$27.66
7-12 Months	51.860000	$15.95	$4.57	$0.33	$0.63	$0.00	$1.13	$0.00	$0.00	$0.00	$22.61	$30.58
2nd Year	56.390000	$17.35	$4.64	$0.35	$0.65	$0.00	$1.20	$0.00	$0.00	$0.00	$24.19	$32.87
3rd Year	60.970000	$18.75	$4.72	$0.36	$0.68	$0.00	$1.28	$0.00	$0.00	$0.00	$25.79	$35.16

Special Calculation Note

OTHER: SUPPLEMENTAL UNEMPLOYMENT

Ratio

1-2 Journeymen to 1 Trainee
3 Journeymen to 2 Trainees
4-5 Journeymen to 3 Trainees
6-8 Journeymen to 4 Trainees
9-10 Journeymen to 5 Trainees
11-13 Journeymen to 6 Trainees

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake, Medina*, Summit*

Special Jurisdictional Note

Summit County - North of State Route 303 including work within the corporate limits of the City of Hudson
Medina County - That portion of Medina County North of Route 18 and Smith Road and the corporate limits of the City of Medina

Details

Plumbing, Heating, Solar Heating, Air Conditioning, Refrigeration, Site Work, Garden Type Apartments, Nursing Homes, Assisted Living Structures, Motels up to 4 stories with conference or restaurant facilities, Mixed Use Residential/Commercial Retail Buildings up to 4 stories, Free Standing Outlet Stores, small buildings in general with no more than 3 restrooms, bars and restaurants, Branch Bank Offices, Convenience stores.

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Roofer Local 44	OCR02-2026ib	Roofer	06/17/2026	06/17/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Roofer	$41.35		$9.76	$11.30	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$62.99	$83.67
Applicant & Helper Trainees												
0 to 1851 hrs	$18.61		$0.65	$0.50	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$20.34	$29.64
1852 to 3350 hrs	$22.74		$9.76	$11.30	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$44.38	$55.75
3351 to 4850 hrs	$28.95		$9.76	$11.30	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$50.59	$65.06
4851 to 6350 hrs	$33.08		$9.76	$11.30	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$54.72	$71.26
6351 to 7550 hrs	$37.22		$9.76	$11.30	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$58.86	$77.47
7551 hrs	$41.35		$9.76	$11.30	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$62.99	$83.67
Apprentice	**Percent**	**BHR**										
Start of school	45.000000	$18.61	$0.65	$0.50	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$20.34	$29.64
600 hrs worked/72 school hrs	50.000000	$20.68	$0.65	$0.50	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$22.41	$32.75
1200 hrs worked/144 school hrs	55.000000	$22.74	$0.65	$0.50	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$24.47	$35.84
1800 hrs worked/216 school hrs	60.000000	$24.81	$9.76	$11.30	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$46.45	$58.85
2400 hrs worked/ 288 school hrs	65.000000	$26.88	$9.76	$11.30	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$48.52	$61.96
3000 hrs worked/360 school hrs	70.000000	$28.95	$9.76	$11.30	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$50.59	$65.06
3600 hrs worked/432 school hrs	75.000000	$31.01	$9.76	$11.30	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$52.65	$68.16
4200 hrs worked/504 school hrs	80.000000	$33.08	$9.76	$11.30	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$54.72	$71.26
4800 hrs worked/576 school hrs	90.000000	$37.22	$9.76	$11.30	$0.52	$0.00	$0.00	$0.06	$0.00	$0.00	$58.86	$77.47

Special Calculation Note

Other: Drug Testing

Ratio

2 Journeymen to 1 Apprentice
2 Journeymen to 1 Applicant/Helper Trainee

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Erie, Geauga, Lake, Lorain, Sandusky

Special Jurisdictional Note

Details

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Sheet Metal Local 33 (Cleveland)	LCN01-2026ib	Sheet Metal Worker	05/20/2026	05/20/2026

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Sheet Metal Worker	$47.15		$10.64	$18.38	$0.98	$0.00	$3.33	$0.00	$0.00	$0.00	$80.48	$104.05
Apprentice	**Percent**	**BHR**										
1st year	50.000000	$23.57	$10.64	$3.15	$0.22	$0.00	$0.00	$0.00	$0.00	$0.00	$37.58	$49.37
2nd year	54.950000	$25.91	$10.64	$3.47	$0.98	$0.00	$3.33	$0.00	$0.00	$0.00	$44.33	$57.29
3rd year	59.960000	$28.27	$10.64	$3.78	$0.98	$0.00	$3.33	$0.00	$0.00	$0.00	$47.00	$61.14
4th year	74.960000	$35.34	$10.64	$4.73	$0.98	$0.00	$3.33	$0.00	$0.00	$0.00	$55.02	$72.69

Special Calculation Note

Ratio

1 Journeyman to 1 Apprentice
2 Journeymen to 2 Apprentices
3-6 Journeymen to 3 Apprentices
7-8 Journeymen to 4 Apprentices
9-10 Journeymen to 5 Apprentices
11-12 Journeymen to 6 Apprentices
13-14 Journeymen to 7 Apprentices
15-16 Journeymen to 8 Apprentices
17-18 Journeymen to 9 Apprentices
19-20 Journeymen to 10 Apprentices

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Cuyahoga, Geauga, Lake

Special Jurisdictional Note

Details

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Sheet Metal Local 33 Industrial Door	LCN01-2025ib	Sheet Metal Worker	08/01/2025	07/30/2025

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Sheet Metal Worker	$26.53		$8.71	$5.66	$0.19	$0.00	$2.61	$0.61	$0.00	$0.00	$44.31	$57.58
Trainees	**Percent**	**BHR**										
Probationary Period (60 Days)	52.000000	$13.80	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$13.80	$20.70
61st day -12 months	58.000000	$15.39	$8.71	$1.96	$0.19	$0.00	$1.68	$0.35	$0.00	$0.00	$28.28	$35.98
2nd Year	68.000000	$18.04	$8.71	$1.96	$0.19	$0.00	$1.90	$0.41	$0.00	$0.00	$31.21	$40.23
3rd Year	73.000000	$19.37	$8.71	$1.96	$0.19	$0.00	$2.05	$0.45	$0.00	$0.00	$32.73	$42.41
4th Year	80.000000	$21.22	$8.71	$1.96	$0.19	$0.00	$2.17	$0.49	$0.00	$0.00	$34.74	$45.35
5th Year	86.000000	$22.82	$8.71	$1.96	$0.19	$0.00	$2.31	$0.52	$0.00	$0.00	$36.51	$47.92

Special Calculation Note

Other: Holiday Pay

Ratio

1-2 Journeyman to 1 Trainee
3-4 Journeymen to 2 Trainee
5-6 Journeymen to 3 Trainees
7-8 Journeymen to 4 Trainees
9-10 Journeymen to 5 Trainees
11-13 Journeymen to 6 Trainees
14-16 Journeymen to 7 Trainees
17-19 Journeymen to 8 Trainees
Maintaining a 3 Journeymen to 1 Trainee ratio thereafter

Jurisdiction (* denotes special jurisdictional note)

Ashland, Ashtabula, Carroll, Columbiana, Coshocton, Crawford, Cuyahoga, Defiance, Erie, Fulton, Geauga, Hancock, Henry, Holmes, Huron, Lake, Lorain, Lucas, Mahoning, Medina, Ottawa, Paulding, Portage, Putnam, Richland, Sandusky, Seneca, Stark, Summit, Trumbull, Tuscarawas, Wayne, Williams, Wood

Special Jurisdictional Note

Details

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Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Truck Driver Local 436 - HevHwy Class 1	LCN02-2025ib	Truck Driver	05/28/2025	05/28/2025

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Truck Driver CLASS 1	$34.92		$9.25	$10.05	$0.40	$0.00	$0.00	$0.00	$0.00	$0.00	$54.62	$72.08
Apprentice	**Percent**	**BHR**										
First 6 months	80.000000	$27.94	$9.25	$10.05	$0.40	$0.00	$0.00	$0.00	$0.00	$0.00	$47.64	$61.60
7-12 months	85.000000	$29.68	$9.25	$10.05	$0.40	$0.00	$0.00	$0.00	$0.00	$0.00	$49.38	$64.22
13-18 months	90.000000	$31.43	$9.25	$10.05	$0.40	$0.00	$0.00	$0.00	$0.00	$0.00	$51.13	$66.84
19-24 months	95.000000	$33.17	$9.25	$10.05	$0.40	$0.00	$0.00	$0.00	$0.00	$0.00	$52.87	$69.46
25-30 months	100.000000	$34.92	$9.25	$10.05	$0.40	$0.00	$0.00	$0.00	$0.00	$0.00	$54.62	$72.08

Special Calculation Note

Ratio

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Cuyahoga, Geauga, Lake

Special Jurisdictional Note

Details

CLASS 1: Drivers on trucks, including but not limited to: 4-wheel service trucks; 4-wheel dump trucks; batch trucks; drivers on tandems; truck sweepers (not to include power sweepers and scrubbers) Drivers on tractor – trailer combinations including but not limited to the following: Semi-tractor trucks; pole trailers; ready-mix trucks; fuel trucks; all trucks five (5) axle and over; drivers on belly dumps; truck mechanics (when needed).

An Official State of Ohio site. Here's how you know

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Truck Driver Local 436 - HevHwy Class 2	LCN02-2025ib	Truck Driver	05/28/2025	05/28/2025

Wage Rates

			Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	**BHR**											
Truck Driver CLASS 2	$35.73		$9.25	$10.05	$0.40	$0.00	$0.00	$0.00	$0.00	$0.00	$55.43	$73.30
Apprentice	**Percent**	**BHR**										
First 6 months	80.000000	$28.58	$9.25	$10.05	$0.40	$0.00	$0.00	$0.00	$0.00	$0.00	$48.28	$62.58
7-12 months	85.000000	$30.37	$9.25	$10.05	$0.40	$0.00	$0.00	$0.00	$0.00	$0.00	$50.07	$65.26
13-18 months	90.000000	$32.16	$9.25	$10.05	$0.40	$0.00	$0.00	$0.00	$0.00	$0.00	$51.86	$67.94
19-24 months	95.000000	$33.94	$9.25	$10.05	$0.40	$0.00	$0.00	$0.00	$0.00	$0.00	$53.64	$70.62
25-30 months	100.000000	$35.73	$9.25	$10.05	$0.40	$0.00	$0.00	$0.00	$0.00	$0.00	$55.43	$73.30

Special Calculation Note

Ratio

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Cuyahoga, Geauga, Lake

Special Jurisdictional Note

Details

CLASS 2: Drivers on articulated dump trucks; rigid-frame rock trucks; distributor trucks; low boys/drag driver on the construction site only and heavy duty equipment (irrespective of load carried) when used exclusively for transportation on the construction site only.