



Bid Book

For

DIX PARK TRAILHEAD and PICNIC AREA

7318 SR 44, Ravenna, Portage County, Ohio

Portage Park District

705 Oakwood St.

Suite G-4

Ravenna, Ohio 44266

(330) 297-7728

admin@portageparkdistrict.org

portageparkdistrict.org

September 30, 2022

CHARLES ENGELHART
THOMAS HRDY
KURT RUEHR
ALLAN ORASHAN
CHRISTINE CRAYCROFT

COMMISSIONER
COMMISSIONER
COMMISSIONER
COMMISSIONER
EXECUTIVE DIRECTOR

Project Engineer: Christopher Bednar, P.E. Karpinski Engineering
3135 Euclid Ave. Cleveland, OH 44115

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**LEGAL NOTICE
PORTAGE PARK DISTRICT
DIX PARK TRAILHEAD and PICNIC AREA**

NOTICE TO BIDDERS

The Portage Park District will receive sealed bids for the above-mentioned project at the Portage Park District Operations Center, 8505 Nicodemus Road, Ravenna, OH 44266 (Shalersville Township), until **12:00 PM** Local Time on **Monday, October 24, 2022**, at which time the bids will be publicly opened and read aloud.

The Engineer is: Karpinski Engineering located at 3135 Euclid Avenue, Cleveland, Ohio 44115, (216) 391-3700; cbednar@karpinskieng.com.

Bid instructions, Drawings, Project Manual, and Specifications will be available online at <https://www.co.portage.oh.us/portage-county-park-district/news-publications/pages/public-notice>. Contractors can register for free on the website and download drawings. Registering on the website will ensure that Contractors receive any addenda in a timely fashion. No paper copies of the drawings will be distributed by Portage Park District or Karpinski Engineering.

The work to be performed as part of this Contract: Grading and surfacing of trailhead and installation of concrete pad for future shelter.

Each bidder shall be required to complete and file with his/her bid a Proposal Guaranty and Performance/Payment Bond Form (Section 153.571 of the Ohio Revised Code) with a Surety Company executing the Bond, which is listed on the Treasury Department's most current list (Circular 570 as amended) and authorized to transact business in the State where the project is based.

If the bid is accepted, the successful bidder shall enter into a contract and the Proposal Guaranty and Performance/Payment Bond shall provide the conditions in said bond, and as listed below:

(A) A Contract Performance Bond in an amount equal to 100% of the estimated cost of the work conditioned, among other things that the Contractor will perform the work upon the terms proposed, within the time prescribed, in accordance with the plans and specifications.

(B) A Payment Bond in an amount equal to 100% of the estimated cost of the work conditioned for the payment by the Contractor and all Sub-contractors for labor performed and materials furnished in connection with the project involved.

The Portage Park District reserves the right to reject any or all bids and waive any informalities in bidding. Bids of Corporations not chartered in Ohio must be accompanied by proper certification that such corporation is authorized to do business in Ohio. All bidders must fill in all blanks of the proposal in ink or typewritten. The entire Bid Book must be submitted intact with the bid.

This Contract is subject to the provisions of Executive Order 11246 of September 24, 1965, as pertains to an Affirmative Action Plan, and Governor Executive Order of January 27, 1972. The successful low bidder will be required to comply with all Contract Requirements for Equal Employment Opportunities. Each bidder must ensure that all employees and applicants for employment are not discriminated against because of race, color, religion, sex or national origin.

For the convenience of each prospective bidder, a non-mandatory pre-bid site visit has been scheduled on Wednesday October 12 at 2:00 at Dix Park, 7318 SR 44, Ravenna, Ohio.

INFORMATION TO BIDDERS

1. Receipt and Opening of Bids:

The Portage Park District invites bids on the form attached hereto. All blanks must be appropriately filled in. **Bids will be received at the Portage Park District Operations Center, 8505 Nicodemus Road, Shalersville, until 12:00 PM Local Time on Monday, October 24, 2022, EST (time determined from Park District mobile phone), and then shall be publicly opened and read aloud immediately thereafter.** The envelopes containing the bids must be sealed, addressed, and designated as bid for ***"DIX PARK Picnic Area."*** **The Portage Park District may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids.** Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. **No bidder may withdraw a bid within sixty (60) days after the actual date of the opening thereof.**

2. Preparation of Bid:

Each bid must be submitted on the prescribed form and accompanied by a bid security as described in paragraph 5. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures, and the foregoing certifications must be fully completed and executed when submitted. In case of discrepancies of written words and figures, the prices written in words shall govern.

Each bid must be submitted in duplicate in a sealed envelope bearing on the outside the name of the bidder, his/her address, and the name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the bid form.

The Engineer's Estimate of Probable Cost, including contingency is:

Base Bid: \$149,840; Alternate #1: \$156,748

3. Method of Bidding:

The Owner invites unit price/lump sum price bids as indicated in the Bid form. If the lowest total responsive bid received exceeds the amount of funds available to finance the contract, the Owner may:

- a. Reject all bids;
- b. Augment the funds available in an amount sufficient to enable award to the lowest responsive bidder or bidders;
- c. Take the base bid less a number of items as listed on the proposal form as to produce a net amount which is within available funds.

4. Qualifications of Bidder:

All bidders shall have experience in all functions of the work described in the plans for this project.

5. Bid Security:

Each bid shall be accompanied by either a Bid Guaranty Bond in the amount of 100% of the Bid amount or by a certified check, cashier's check, or letter of credit on a solvent bank in the amount of not less than 10% of the amount of the Bid, subject to conditions provided in the Instructions to Bidders. The successful BIDDER will be required to furnish a satisfactory Performance Bond in the amount of 100% of the Bid in accordance with Section 153.54 of the Ohio Revised Code.

Such cash, checks or bid bonds will be returned promptly after the Owner and the accepted bidder have executed the contract, or, if no award has been made within sixty (60) days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as he/she has not been notified of the acceptance of his/her bid. Attorneys-in-fact who sign bid bonds must file with each bond a certified and effectively dated copy of their power of attorney.

Bid security furnished in bond form shall be issued by a Surety Company or Corporation licensed in the State of Ohio to provide said surety.

6. Liquidated Damages for Failure to Enter into Contract:

The successful bidder, upon his/her failure or refusal to execute and deliver the contract and bonds required within ten (10) days after he/she has received notice of the acceptance of his/her bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his/her bid.

7. Conditions of Work:

Each bidder must inform himself/herself fully to the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his/her obligation to furnish all material and labor necessary to carry out the provisions of his/her contract. Insofar as possible the contractor, in carrying out the work, must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor.

8. Obligation of Bidder:

At the time of the opening of bids each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents. This includes any and all addenda. The failure or omission of any bidder to examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect of his/her bid.

9. Examination of Site:

Each bidder shall and is hereby directed to inspect the entire site of the proposed work and judge for himself/herself as to all the circumstances affecting the cost and progress of the work and shall assume all patent and latent risks in connection therewith. For the benefit of each prospective bidder, **a Non-Mandatory Pre-bid Conference has been scheduled for Wednesday, October 12, 2:00 at DIX PARK, 7318 SR 44, Ravenna, Ohio.**

10. **Working Facilities:**

The plans show, in the general and detailed manner, the existing structures and the land available for construction purposes. The bidders must satisfy themselves of the conditions and difficulties that may be encountered in the execution of the work at this site.

11. **Addenda and Interpretations:**

No official interpretation of the meaning of the plans, specifications or other pre-bid documents will be made to any bidder orally.

Every request for such interpretation should be in writing addressed to **Chris Bednar at Karpinski Engineering via email and contain DIX PARK PICNIC AREA– RFI in the address**; Email: cbednar@karpinskieng.com and to be given consideration, **must be received by October 14, by 4 P.M.**

Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be posted on the Portage Parks website, **not later than October 19 at 4 pm**. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his/her bid as submitted. All addenda so issued shall become part of the contract documents.

12. **Water Supply:**

All water for construction purposes, as well as the expense of having water conveyed about the work, must be provided by the Contractor and the cost of this work shall be included in the unit prices stipulated for the various items of the work to be done under this contract.

The source, quality and quantity of water furnished shall, at all times, be satisfactory to the project engineer.

13. **Signature of Bidders:**

The firm, corporate or individual name of the bidder must be signed in ink in the space provided for the signatures on the proposed blanks. In the case of a corporation, the title of the officer signing must be stated and such officer must be thereunto duly authorized and the seal of said corporation duly affixed. In the case of the partnership, the signature of at least one of the partners must follow the firm name, using the term "member of the firm". In the case of an individual, use the terms "doing business as", or "sole owner". The bidder shall further state in his proposal the name and address of each person or corporation interested therein.

14. **Notice of Special Conditions:**

Attention of the bidder is particularly called to those parts of the General Contract Conditions and other contract documents and specifications which deal with the following:

- a. Insurance requirements
- b. Requirement for a performance bond for 100% of contract price
- c. Requirement that all subcontractors be approved by the owner

- d. Time-for-completion and liquidated damages requirements
- e. Affirmative Action and Equal Opportunity provisions, including Prevailing Wage requirements
- f. Successful bidder shall provide any proof of registration as may be required within Portage County

15. Additional Obligations Upon Contract Award:

Upon award of the contract but prior to execution of the final agreement and notice to proceed, the contractor shall submit all of the following documents, completed as required:

- a. Acceptance of Notice of Award
- b. Contract
- c. Insurance certificate(s) and/or policy(ies)/Workers Compensation Certificate
- d. Performance Bond, if not already provided
- e. Contractor Registration for prime and subcontractors, if required

16. Foreign Corporations and Contractors

a. Foreign Corporations

Definition: "Foreign Corporation" means a corporation incorporated under the laws of another state. No contract shall be entered into with a foreign corporation until the Secretary of State has certified that such corporation is authorized to do business in Ohio; and until, if the bidder so awarded the contract is a person or partnership, it has filed with the Secretary of State a Power of Attorney designating the Secretary of State as its agent for the purpose of accepting service of summons in any action brought under Section 153.05 of the Ohio Revised Code or under Sections 4123.01 to 4123.94, inclusive of the Revised Code.

17. Signing Bid — Agreement to Terms of Attached Contract:

By signing this bid, Contractor acknowledges reading all attached and all referenced documents and agrees he/she abide by the terms therein, without modification, unless Owner agrees to such modifications in writing. Modifications of any documents attached or referenced herein shall not be made a condition of signing the final contract by the Contractor and failure to sign the contract as worded herein within the time allotted shall subject the Contractor to forfeiture of his/her bid security.

18. Liquidated Damages for Failure to Complete Project by Completion Date

Contractor and Park District recognize that time is of the essence of this Project and that the Park District will suffer financial loss if the work is not completed within the times specified under Completion Date, plus any extensions allowed under the contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by the Park District if the Work is not completed on time. Accordingly, instead of requiring such proof, the Park District and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay the Park District two hundred fifty dollars (\$250.00) for each day that expires after the time specified in the Completion Date until the work is substantially completed. After substantial completion, if Contractor shall neglect, refuse or fail to complete the remaining work within the contract time or any

proper extension thereof granted by the Park District, Contractor shall pay Park District two hundred fifty dollars (\$250.00) for each day that expires after the time specified in Completion Date for completion and readiness for final payment until the work is completed and ready for final payment.

19. Applicable Laws

The Revised Code of the State of Ohio, insofar as they apply to the laws of competitive bidding, contracts, and purchases, are made a part hereof. The contractor, subcontractors, and any persons on their behalf shall be required to comply with all of the provisions of Chapter 4115: Wages and Hours on Public Works of the Revised Code of the State of Ohio, and all amendments, additions and deletions thereto.

All laws of the United States of America, the State of Ohio, and the Portage Park District applicable to the products or services covered herein, are made a part hereof.

Section 4115.07 of the Ohio Revised Code of the State of Ohio provides that all contractors or subcontractors falling within or affected by Section 4115.03 to 4115.14 inclusive of the Ohio Revised Code, shall keep full and accurate payroll records covering all disbursements of wages to their employees to whom they are required to pay not less than the minimum prevailing rates of wages, as set forth in the Contract. Such payroll records shall not be destroyed or removed from the State for a period of one year following the completion of the Contract in connection with which records are made.

At any time during the life of the Contract, the Park District may demand that the contractor and/or his subcontractors submit an affidavit stating that wages have been paid for the pay period or periods in question in conformance with the minimum rates set forth in the contract. Such affidavits must be supported by a certified copy of his/her detailed payroll records for the questioned period or periods. Said detailed payroll records shall show the individuals by name, classification and pay rate on the contractor's payroll each day of the period, together with the hours each day and the total amount paid, plus any deductions which may have been made. The Park District may withhold partial payments pending the submission of the affidavit and certified payroll records. If minimum wage requirements have not been met in accordance with the terms of the contract, payments may be withheld until the contractor and/or subcontractor has complied.

UPON COMPLETION OF THE WORK AND PRIOR TO FINAL PAYMENT, THE CONTRACTOR and SUBCONTRACTORS (IF ANY) SHALL SUBMIT AN AFFIDAVIT (SEE PREVAILING WAGE RESPONSIBILITIES SECTION) STATING THAT WAGES HAVE BEEN PAID IN CONFORMANCE WITH THE MINIMUM RATE SET FORTH IN THE CONTRACT.

The affidavit must be executed and sworn to by the officer or agent of the contractor or subcontractor who supervises the payment of employees, before the Park District will release the Surety and/or make final payment due under the terms of the contract.

20. Clerical Error

The Park District reserves the right to correct any award erroneously made as a result of a clerical error on the part of the Portage Park District.

21. Infringements and Indemnification

The bidder, if awarded an order or contract, agrees to protect, defend, and save the Park District harmless against any demand for payment for use of any patented material, process, article, or device that may enter into the manufacture, construction, or from a part of the work covered by either order or contract and he further agrees to indemnify and save the Park District harmless from suits or actions or every nature and description brought against it, for or on account of any injuries or damages received or sustained by a party or parties by or from any act of the acts of the contractor, his servants or agents.

To that extent, the bidder or contractor agrees to furnish adequate Public Liability and Property Damage Insurance, the amount of which will be determined by the Park District whenever such insurance is deemed necessary. When so required, the types and amounts of insurance to be provided are set forth in the Invitation to Bid. When the Park District requires a certificate of insurance on the policy, the Park District is to be included as an additional insured.

22. Workers' Compensation

Insofar as Worker's Compensation is concerned, the bidder or contractor agrees to furnish an official certificate or receipt of the Industrial Commission of Ohio, showing that he has paid into the State Insurance fund the necessary premiums, whenever such certificates are required in the Advertisement for Bids.

23. Equal Employment Opportunity Policy

Any contract which shall be entered into between the Portage Park District and the successful bidder shall contain the following provisions:

In hiring of employees for the performance of work under this contract or any subcontract, no contractor, subcontractor or any person acting on his behalf shall, by reason of race, color, religion, national origin, ancestry, or sex discriminate against any person who is qualified and able to perform the work required by such employment.

The contractor, subcontractor, or any person or corporation acting on his behalf shall not, by reason of race, color, religion, national origin, ancestry, or sex, in any manner intimidate any employee hired for the performance of work in connection with the manufacture, processing, or furnishing of any such material, supplies, or equipment.

24. Insurance

The Contractor shall not commence work under this Contract until he has obtained all the insurance required hereunder and such insurance has been approved by the Owner, nor shall the Contractor allow any Subcontractor to commence work on his subcontract until all similar insurance required of the Subcontractor has been so obtained and approved. Approval of the insurance by the Owner shall not relieve or decrease the liability of the Contractor hereunder.

The contractor shall file with the Owner all Certificate(s) of Insurance as are necessary to document the insurance coverage required hereunder, subject to the approval of the Owner and receipt of any additional forms/documentation requested, prior to final execution of the Contract and issuance of the Notice to Proceed.

Requirements for all Insurance Coverages

Notices to Owner and Other Additional Insured

The policy shall provide and the Certificate shall reflect the fact the Owner and all other additional insured shall receive at least 30 days notice of any cancellation or change in the coverage (except for nominal changes) adverse to the interests of the Owner and other additional insured in order for such cancellation or change in coverage to be effective. The Owner and other additional insured shall be provided with any notice or non-renewal, regardless of the cause.

Additional Insured

The insurance required by this Section shall include the interests of the Contractor and its subcontractors, the Engineer and its subconsultants in the work, including each of their respective employees, all of whom shall be listed as insured or as additional insured. The Owner's financing agency shall also be listed as an additional insured, as necessary.

Policy Format

All policies shall be the Insurance Service Office's current form or better.

General Liability

Types of Insurance: The policy should provide at a minimum, the following coverages and the Certificate of Insurance shall so indicate whether the coverage is provided in the basic policy or in supplemental coverage to negate an exclusion in the basic policy:

- Comprehensive Form
- Premises/Operations
- Underground, Explosion and Collapse Hazard (Underground and Collapse Hazard coverage required only for General Construction Contractor and others doing excavation and other earthwork)
- Products/Completed Operations
- Contractual
- Independent Contractor
- Broad Form Property Coverage

Liability Limits: The liability limits for the coverages noted above shall be at least as noted below.

	Liability Limits	
	Each Occurrence	Aggregate
BI & PD Combined (CSL)	\$ 1,000,000	\$ 1,000,000

Automobile Liability

Types of Coverage: The policy shall include at least the following types of coverage:

- Any Auto
- All Owner Autos (Priv. Pass.)
- All Owned Autos (Other than Priv. Pass.)
- Hired Autos
- Non-Owned Autos

Liability Limits: The liability limits for the coverages noted above shall be at least as noted below.

	Liability Limits	
	Each Occurrence	Aggregate
BI & PD Combined	\$ 1,000,000	\$ 1,000,000

Owners Protective Liability Policy: The liability limits for the coverages noted above shall be at least as follows:

	Liability Limits	
	Each Occurrence	Aggregate
BI & PD Combined	\$ 1,000,000	\$ 1,000,000

Builders Risk/Installation Floater

Types of Coverage

The Contractor shall insure for the life of the contract against all loss or damage by fire, flood other than National Flood Insurance (whether in a flood hazard area or not), hurricane, windstorm, hail, lightning, explosion, riot civil commotion, aircraft, smoke, vehicles and other hazards covered by the standard current I.S.O. standard fire and extended coverage insurance endorsement. Coverage shall also be provided for all materials and equipment for which pre-incorporation payment is requested.

Limits of Liability: The limit of liability for the coverage noted above shall be not less than the amount of the Contract.

Contractor's Insurance Agent E/O Certificate

Contractor's insurance agent shall provide the Park District with Agent's Errors and Omissions Certificate in the minimum amount of One Million Dollars (\$ 1,000,000.00)

The Policies as listed above shall contain all the following special provisions:

The Company agrees that thirty (30) days prior to cancellation or reduction of the insurance afforded by this policy with respect to the Contract involved, written notice will be mailed to the Portage Park District.

The maintaining of such insurance as outlined herein shall in no way constitute a waiver of legal liability for damage to any adjoining buildings or their contents or the work and property of others on the site beyond the limits of insurance thus maintained. The Contractor shall hold the Owner free and harmless from any injury and damage resulting from the negligent or faulty performance of the contract by the Contractor or by his/her Subcontractors.

Each contractor shall hold the Owner harmless from all payments for patents, either as royalty or otherwise, in the use of materials, methods, appliances, etc., that he may be in any way involved in or connected with any part of his work or the work of his Subcontractors.

Upon contract award, the contractor shall furnish one (1) copy of Declaration of Insurance as evidence of coverage.



DIX PARK Picnic Area

To: All Bidding Contractors
From: Christine Craycroft, Executive Director
Re: Submittal Requirements
Date: September 30, 2022

To Interested Bidders:

The bid specifications require you to submit the items listed below. The omission of any item called for by the bid document does not relieve you of the responsibility to comply with the requirement. Please review your specifications. This list is for your convenience only. If you do not have the listed items submitted, your bid may not be considered.

Please submit:

- Bidder's Proposal and itemized Bid Form
- Proposed Construction Schedule-provided by bidder
- Delinquent Tax Affidavit
- Certificate in Compliance with Section 3517.13
- Non-Collusion Affidavit
- Income Tax Affidavit
- Certification Against Debarment and Suspension
- Unresolved Finding for Recovery Certification
- Bid Guaranty & Bond
- Statement of Bidder's Qualifications & Affidavit
- Proposed Subcontractors' Breakdown

GENERAL PROVISIONS

GENERAL PROVISIONS

ARTICLE 1 - DEFINITIONS

Whenever the words defined in this article, or pronouns used in their stead, occur in the Contract Documents, they shall have the meanings given herein.

Owner: The Portage Park District or their designated representative or any officer duly authorized to act for said agency.

Architect/ Engineer: The Project Manager/ Architect/ Engineer so designated by the Portage Park District assigned to administer the contract.

Inspector: An authorized representative of the Project Manager/Architect/Engineer assigned to make any and all necessary inspections of the work performed and materials furnished by the Contractor.

Contractor: The party entering into the Contract for the performance of the work required thereby, the legal representative of said party, or the agent appointed to act for said party in performance of the work.

Subcontractor: An individual, firm, or corporation who contracts with the Contractor to perform part or all of the latter's contract.

Surety: The body corporate which is bound with and for the Contractor on the bond furnished in connection with this project, which bond forms a part of the Contract Documents.

Specifications: The definitions, instructions, descriptions, directions, provisions, and requirements contained herein and all written supplements thereof made, or to be made, pertaining to the Contract and the materials and workmanship to be furnished under the Contract.

Contract: All things contained in the specifications, drawings, proposal, agreement, and bond; also, all supplemental agreements which could reasonably be required to complete the construction contemplated. The above items shall be considered as one instrument forming the Contract. It is understood that all things contained or referred to in the Advertisement, Information to Bidders, Special Provisions, General Provisions, Detailed Specifications, Signed Contract, Contract Bond, and Drawings, as well as all other papers or addenda attached to or bound with any of the above or referred to therein, are part of the Contract and are to be considered as one instrument constituting the Contract Documents. The intent is to make the various "Parts" and "Sections" of the Contract Documents complementary one to the other. No papers attached to or bound with any of the above shall be detached thereto, as all are a necessary part thereof. Whenever in the Specifications or in the Drawings the words directed, permitted, ordered, designated, prescribed or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation or prescription of the Engineer is intended.

ARTICLE 2 - CONTRACT AND CONTRACT DOCUMENTS

All applicable State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

The specifications and addenda, shall form part of this Contract and the provisions thereof shall be as binding upon the parties hereto as if they were herein fully set forth. The table of contents, titles, headings, running headlines and marginal notes contained herein and in said documents are solely to facilitate reference to various provisions of the Contract Documents and in no way affect, limit or cast light on the interpretation of the provisions to which they refer.

ARTICLE 3 - PERFORMANCE BOND

Simultaneously with his/her delivery of the executed contract, the Contractor shall furnish a surety bond as security for faithful performance of this contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract, as specified in the General Conditions included herein. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Owner. The bond shall be for 100 percent of the contract price. A Performance Bond meeting the requirements of O.R.C. 153.54 is required. Attorneys-in-Fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

ARTICLE 4 - ANTIDISCRIMINATION

In connection with the performance of work under this Contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, national origin, ancestry, or sex. The Contractor shall post in conspicuous places, available for employees or applicants for employment, notices to be provided by the Owner setting forth the provisions of this non-discrimination clause and the Contractor shall insert the foregoing provisions in all contracts hereunder, except Subcontracts for standard commercial supplies or raw materials.

ARTICLE 5 - AUTHORITY OF PROJECT MANAGER/ARCHITECT/ENGINEER

The Architect/Engineer shall give all orders and directions contemplated under this Contract; shall determine in all cases the amount, quality, acceptability, and fitness of the several kinds of work and materials for which payment is to be made; shall determine all questions respecting the true interpretation or meaning of the Drawings or Specifications relating to said work and the construction thereof; shall decide in all cases every question which may arise relative to the fulfillment of this Contract on the part of the Contractor. In case any dispute shall arise between the parties hereto involving this Contract, seeking determinations and decisions of the Project Manager/Architect/Engineer shall be a condition precedent to the right of the Contractor to receive any money under this Contract.

ARTICLE 6 - AUTHORITY AND DUTIES OF INSPECTORS

Inspectors employed under the supervision of the Project Manager/Architect/Engineer shall be authorized to inspect all work done and materials furnished. Inspection may extend to any part of the work and of the preparation or manufacture of the materials to be used. Inspectors will be assigned to the various phases of the work, reporting to the Project Manager/Architect/Engineer as to the progress of the work and the manner in which it is being performed; also reporting whenever it appears that the materials furnished and work done by the Contractor fail to fulfill the requirements of the Specifications and Drawings, and to call to the attention of the Contractor any failure or other default; but, no inspection, nor any failure to inspect at any time or place, shall relieve the Contractor from any obligation to perform all the work strictly in accordance with the requirements of the Specifications. In case of any dispute arising between the Contractor and the inspector as to materials furnished or the manner of performing the work, the inspector shall have the authority to reject materials or suspend work until the question at issue can be referred to and decided by the Project Manager/Architect/Engineer. The inspectors shall perform such other duties as are assigned to them. They shall not be authorized to revoke, alter, enlarge, relax, or replace any requirements of these Specifications, nor to approve or accept any portion of the work, nor to issue instructions contrary to the Drawings and Specifications. Inspectors shall in no case act as foremen or perform other duties for the Contractor, nor interfere with the management of the work. Any instructions which the inspectors may give the Contractor shall in no way be construed as committing the Project Manager/Architect/Engineer, or the Owner, in any way, nor releasing the Contractor from fulfillment of the terms of the Contract.

ARTICLE 7 - SUPERVISION

The Contractor will supervise and direct the work. He/She will be solely responsible for the means, methods, techniques, sequences, and procedures of construction. The Contractor will employ and maintain on the work site a qualified supervisor or superintendent who shall have been designated in writing by the Contractor as the Contractor's representative at the site. The supervisor shall have full authority to act on behalf of the Contractor and communications given to the supervisor shall be as binding as if given to the Contractor. The supervisor shall be present and on the site at all times as required to perform adequate supervision and coordination of work.

The Owner and its representatives will, at all times, have access to the work. In addition, authorized representatives and agents of any participating federal or state agency shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The Contractor will provide proper facilities for such access and observation of the work and also for any inspection or testing thereof.

The Contractor shall submit a proposed program of operation, showing clearly how he/she proposes to conduct the work so as to bring about the completion of his/her work within the time limit specified. This program shall outline the proposed sequence of operations, the rates of progress and the dates when his/her work will be sufficiently advanced to permit the installation of the work under other contracts, and the estimated progress payments due under the Contract. The work under this contract shall be so scheduled that as structures are completed, they can be placed into useful operation with a minimum of delay. The program shall be subject to the approval of the Owner.

All construction as proposed along all City, Township, State and Federal rights of way including storage and stockpiling of materials, is to be conducted within the limits of the public right-of-way. Bracing, sheeting, and shoring shall be used to keep all construction work within the construction limits unless work agreements are secured from the adjacent property owners. It is the Contractor's responsibility to secure these work agreements, if deemed necessary. Copies of the work agreements shall be delivered to the Project Manager/Architect/Engineer and the Owner prior to any work beginning on the affected property.

ARTICLE 8 - EQUIPMENT

The Contractor shall furnish such equipment as is considered necessary for the prosecution of the work in an acceptable manner and at a satisfactory rate of progress. All equipment, tools, and machinery used for handling materials and executing any part of the work shall be subject to the approval of the Project Manager/Architect/Engineer and shall be maintained in a satisfactory working condition. Equipment used on all portions of the work shall be such that no injury to work, adjacent property, or other objects will result from its use. The contract may be annulled if the Contractor fails to provide adequate equipment for the work.

ARTICLE 9 - SAFETY

The Contractor will be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work. He/She will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury, or loss to all employees of the work and other persons who may be affected thereby, and all the work and all materials or equipment to be incorporated therein, whether in storage on and off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

The Contractor will erect and maintain, as required by the conditions and progress of the work, all necessary safeguards for safety protection. He/She will notify owners of adjacent utilities when prosecution of the work may affect them.

The Contractor shall comply with the safety standards provisions of applicable laws, building and construction codes and the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-586), and the requirements of Title 29 of the Code of Federal Regulations, Section 1518 as published in the "Federal Register", Volume 36, No. 75, Saturday, April 17, 1971. The Contractor shall also comply with Chapter 4104.9-2 of the Ohio Revised Code prohibiting the Employment of Minors in Occupations Hazardous or Detrimental to their Health.

The Contractor shall maintain at his/her office or other well-known place at the job site, all articles necessary for giving first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or a doctor's care of persons (including employees) who may be injured at the job site. In no case shall employees be permitted to work at a job site before the employer has made a standing arrangement for removal of injured persons to a hospital or a doctor's care.

Lights, signs, and barricades shall be used to maintain traffic and safety for vehicular and pedestrian traffic during the course of this contract in accordance with the specifications.

ARTICLE 10 - INDEMNIFICATION

The Contractor shall indemnify and save the Owner or the Owner's agents harmless from all claims growing out of the lawful demands of Subcontractor's laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the work. The Contractor shall, at the Owner's request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the Contractor fails to do so the Owner may, after having notified the Contractor, either pay unpaid bills or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed, in accordance with the terms of the Contractor Documents, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor, his/her Surety, or any third party. In paying any unpaid bills of the Contractor, any payment so made by the Owner shall be considered as a payment made under the Contract Documents by the Owner to the Contractor and the Owner shall not be liable to the Contractor for any such payments in good faith.

ARTICLE 11 - CONSTRUCTION SCHEDULE

The date of beginning and the time for completion of the work are essential conditions of the Contract Documents. Bidders shall submit a proposed construction schedule with the bid, with the understanding that the project shall be completed by August 1, 2021, and once work commences it shall be continuous until complete. The Owner and Contractor shall mutually agree on a commencement date to be specified in the Notice to Proceed.

The Contractor will proceed with the work at such rate of progress as to ensure full completion within the Contract Time. It is expressly understood and agreed, by and between the Contractor and the Owner, that the Contract Time for the completion of the work described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the work.

If the Contractor shall fail to complete the work within the Contract Time, or extension of time granted by the Owner, the Contractor will pay to the Owner for liquidated damages \$250.00 for each calendar day that the Contractor shall be in default after the time stipulated in the Contract Documents.

ARTICLE 12 - COMPLETION OF WORK

The Contractor shall guarantee all materials and equipment furnished for a period of one year from the date of Substantial Completion. The Contractor warrants and guarantees for a period of one year from the date of Substantial Completion of the improvement that it is free from all defects due to faulty materials or workmanship, and the Contractor shall promptly make corrections as may be necessary by reason of such defects. The Owner will give notice of observed defects with reasonable promptness. In the event that the Contractor should fail to make repairs, adjustments, or other work which may be

made necessary by such defects, the Owner may do so and charge the Contractor the cost thereby incurred. The Performance Bond shall remain in full force and effect through the guarantee period. When the work, including that performed by Subcontractors, is completed, the site shall be cleaned of all rubbish and debris caused by the construction and all privately owned property shall be returned to its original condition. All sheds or other temporary structures, surplus materials, and equipment shall be removed and the project left in a neat and presentable condition.

ARTICLE 13 - LAWS AND REGULATIONS

The Contractor shall keep himself fully informed of all Federal and State Laws in any way affecting those engaged or employed in the work, the material used in the work, or in any way affecting the conduct of the work, and of all orders and decrees of bodies or political subdivisions having any jurisdiction or authority over the same. If any discrepancy or inconsistency shall be discovered in this Contract or in the Drawings and Specifications herein referred to in relation to any such law, regulation, decree, or order, the Contractor shall forthwith report the same in writing to the Engineer. He/She shall at all times himself observe and comply with, and shall cause all of his/her agents and employees to observe and comply with, all such existing and future laws, regulations, orders and decrees; and shall protect and indemnify the Park District, its officers and agents against any claims or liability arising from or based on the violation of such law, regulation, order or decree whether by himself or by his employees.

ARTICLE 14 - SUBCONTRACTS

The Contractor shall not sublet, sell, transfer or assign any portion of the contract without written consent of the Owner or the Owner's designated agent. When such consent is given, the Contractor will be permitted to sublet a portion thereof, but shall perform with his/her own organization, work amounting to no less than fifty percent of the total contract cost, except any item designated in the contract before computing the amount of work required to be performed by the Contractor with his/her own organization. No subcontract, or transfer of contract, shall in any way release the Contractor or his/her liability under the contract and bonds.

The Contractor shall not award work to subcontractor(s) without prior written approval of the Owner and after submission of all certifications as required in the Instructions to Bidders. The Contractor shall be fully responsible to the Owner for the acts and omissions of the subcontractor(s), and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

ARTICLE 15 - ASSIGNMENT

The Contractor shall not assign, transfer, convey, sublet, or otherwise dispose of this Contract or his right, title, or interest in or to the same or any part thereof, without the previous consent in writing of the Owner endorsed herein or hereby attached; and he shall not convey by power of Attorney or otherwise, any of the moneys to become due and payable under this Contract unless, by and with, like consent signified in a like manner. If the Contractor shall, without previous written consent, assign, transfer, convey, sublet or otherwise dispose of his/her Contract or his/her right, title or interest therein or any moneys to become due under this Contract to any person, firm or corporation, this Contract may, at the option of the Owner, be revoked and annulled and the Owner shall thereupon be relieved and

discharged from any and all liabilities and obligations growing out of the same to the Contractor and to his/her assignee or transferee; provided that nothing herein contained shall be construed to hinder, prevent, or affect an assignment by the Contractor for the benefit of his/her creditors, made pursuant to the statutes of the State of Ohio; and no right under this Contract, or to any moneys to become due hereunder, shall be asserted against the Board in law or equity, by reason of any so-called assignment of this Contract, or any part thereof, or any moneys become due hereafter unless authorized by written consent of the Owner.

ARTICLE 16 - CHANGE OF WORK

The Owner reserves the right to make, at any time during the progress of the work, such increases or decreases in quantities and such alterations in details of work as may be deemed necessary or desirable. Such increases or decreases and alterations shall not invalidate the contract nor release the surety, and the Contractor agrees to perform the work as altered, the same as if it had been a part of the original contract.

Authorized alterations in plans or quantities of work involving work not covered by unit prices in the proposal shall be paid for as stipulated in the change order authorizing such work.

No changes in work covered by the approved Contract shall be made without having prior written approval of the Owner.

ARTICLE 17 - ESTIMATED QUANTITIES

The quantities of the various classes of work to be done and materials to be furnished under this Contract, which have been estimated as stated in the Advertisement of the Bid, are approximate and only for the purpose of comparing, on a uniform basis, the bids offered for the work under this Contract. Neither the Owner, nor any of its officers or agents thereof, are held responsible because any of the said estimated quantities shall be found to be greater or less on the completion of work. The Contractor shall make no claim for anticipated profits or for loss of profits because of a difference between the quantities as established for the final estimate and the various estimated quantities stated in the Proposal.

ARTICLE 18 - PARTIAL ESTIMATES

Each month the Engineer will make in writing an estimate of the amount and value of the work and the materials incorporated in the work by the Contractor in the performance of this Contract. The Contractor shall aid the Engineer in the preparation of this estimate by submitting to him at the start of each month an estimate of the work he has accomplished during the preceding month, broken down by items and containing supporting computations. The first such estimate shall be of the amount and value of the work done and the materials incorporated in the work since the Contractor commenced the performance of the Contract. Every subsequent estimate, except the final estimate, shall be of the amount and value of the work done and materials incorporated in the work since the last preceding estimate was made; provided, however, that no such estimate shall be required to be made when, in the judgment of the Project Manager/Architect/Engineer, the total value of the work done and material incorporated in the work since the last preceding estimate amounts to less than two thousand dollars. At the discretion of the Project Manager/Architect/Engineer allowances may be made for non-

perishable materials which are to be incorporated in the work, when delivered and properly stored upon the site. Payment for materials and equipment delivered and stored as specified above shall be based upon certified paid invoices to be submitted by the Contractor and title to the same shall be vested with the Owner upon payment therefore. The Contractor's plant shall not be included in partial estimates, such estimates shall not be required to be made by strict measurement, but they may be made by measurement or by estimation, or partly by one method and partly by the other, and it shall be sufficient if they are approximate only. Such estimates shall be dated as of the last day of the month covered by the estimate, except the final estimate.

ARTICLE 19 - PARTIAL PAYMENTS

Before the contract is fifty percent completed, labor performed on the project and materials delivered on site shall be paid for at a rate of ninety-two percent of the estimates for partial payment as submitted by the Contractor, checked and prepared by the Project Manager/Architect/Engineer, and approved by the Project Manager/Architect/Engineer.

ARTICLE 20 - ADJUSTMENT OF RETAINED PERCENTAGES

After the Contract is more than fifty percent completed, labor performed shall be paid for at the rate of one hundred percent of the estimates submitted by the Contractor, checked and approved by the Project Manager/Architect/Engineer.

All materials delivered on the site after the Contract is fifty percent completed shall be paid for at a rate of ninety-two percent of the invoiced value of the material. The balance of such estimate shall be paid when the material is incorporated into and becomes a part of the project.

The Contract shall be fifty percent completed when the Contractor has been paid an amount equal to fifty percent of the total cost of the labor of the Contract and fifty percent of the total cost of the material of the Contract.

ARTICLE 21 - PARTIAL PAYMENT MAY BE WITHHELD

Partial payments may at any time be withheld or reduced if, in the opinion of the Project Manager/Architect/Engineer, the work is not proceeding in accordance with this Contract.

ARTICLE 22 - FINAL ESTIMATE

When, in the opinion of the Project Manager/Architect/Engineer, all the work contemplated by this Contract is completed, he shall measure up said work and prepare a final estimate of the same. The Contractor shall aid the Project Manager/Architect/Engineer in the preparation of this estimate by submitting to him, as soon as possible following the completion of work an estimate of the work he has done under this Contract, broken down by items and containing supporting computations. The Owner shall, within thirty days after receiving the said final estimate, make payment of ninety-six percent of the amount of said estimate, less previous payments to the Contractor and such other sums as may lawfully be retained under the terms of this Contract, provided that all terms of this Contract have been

complied with by said Contractor. Such estimate shall be dated as of the day on which the Contractor shall have completed the work called for to be done under this Contract.

ARTICLE 23 - FOUR PERCENT RESERVE

The said Contractor hereby further agrees that the Owner shall be, and is hereby authorized to retain for a period of thirty days subsequent to the date of the final acceptance of work, out of the money payable to said Contractor under this agreement, the sum of four percent of the amount of the Contract, and to expend the same in making such repairs of the said work for which the Contractor is responsible as the Project Manager/Architect/Engineer may deem necessary in case such repairs are neglected by the Contractor after reasonable notice.

ARTICLE 24 - REPAIRS FOR ONE YEAR

The Contractor shall make all repairs due to defective workmanship of material for the term of one year after the date of the final estimate; shall correct and repair promptly during that time all defective work and material of whatever description; and shall deliver the work in all respects in good condition at the end of that time. However, ordinary wear and tear, or damage due to negligent or improper operation on the part of the Owner, shall not be considered an obligation of the Contractor. Twelve months after the date of the final estimate, as hereinbefore mentioned, and as soon after the expiration of the said twelve months as practicable, the Owner shall make or cause to be made a final inspection of the performance of this Contract.

If such performance and work shall be found satisfactory and not to have deteriorated through defects of workmanship or material, then the Owner shall accept said work. Such acceptance shall be a prerequisite to the release of the surety on the warranty bond. If, however, the final or any prior inspection discloses defects due to non-fulfillment of this Contract, or non-compliance with its requirements, the Owner shall so notify the Contractor in writing and thereupon the Contractor shall, at his/her own expense, repair or replace and shall make good all defects of materials, workmanship, or guarantee. Such repairs shall be a prerequisite to the approval and acceptance of the work and the release of the surety on the warranty bond. In case the Contractor shall neglect or fail to promptly make said repairs, after written notification, the Owner shall cause such repairs to be made at the expense of the Contractor.

ARTICLE 25 - FINAL PAYMENT

The Owner agrees that upon the expiration of said period of thirty (30) days, provided all the work shall at that time be in good order and approved by the Owner following the final inspection, the said Contractor shall be entitled to receive the whole or that part of the above mentioned sum as may remain after the expense of making such repairs shall have been paid thereto. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

The Owner hereby agrees to pay and the Contractor hereby further agrees to receive in full compensation for furnishing all materials and doing all work as contemplated and set forth by these Specifications and the accompanying drawings, the several sums and prices set forth in the proposal sheet hereto attached.

ARTICLE 26 - LIENS

If, at any time within thirty (30) days after the whole work herein agreed to be performed and all labor and material herein agreed to be delivered have been performed and delivered or completed and accepted by the Owner, any person or persons claiming to have performed any labor or furnishing any materials toward the performance or completion of this Contract shall file with the Owner notice according to law, the Owner shall retain until the discharge thereof, from all money under its control, such moneys as shall be sufficient to satisfy and discharge the amount in such notice claimed to be due, together with the costs of any action or actions brought to enforce such lien created by the filing of such notice.

ARTICLE 27 - TERMINATION

After ten (10) days from delivery of a written Notice to the Contractor, the Owner may, without cause and without prejudice to any other right or remedy elect to terminate the Contract. In such case the Contractor shall be paid for all work executed and any expense sustained. Contractor shall also be entitled to reasonable profit, unless such termination was due to the act or conduct of the Contractor.

SPECIAL PROVISIONS

SPECIAL PROVISIONS

ARTICLE 1. Physical Data

The Contractor shall make all explorations necessary to locate structures to which connections are to be made without extra expense to the Owner.

ARTICLE 2. Night Work

No work shall be done during the hours between sunset and sunrise without the prior approval or order of the Project Manager/Architect/Engineer.

ARTICLE 3. Work on Sunday and Holidays

No work will be permitted on Sundays or on legal holidays except upon the specific authorization or direction of the Project Manager/Architect/Engineer (to be authorized only in case of extreme emergency).

ARTICLE 4. Protection of Existing Structures

The Contractor shall make such investigations as are necessary to determine the extent to which existing structures may interfere with the prosecution of the work contemplated under this Contract.

Any existing surface, subsurface or overhead structures damaged or destroyed shall be promptly repaired or replaced by the Contractor in a satisfactory manner at his own cost and expense.

ARTICLE 5. Care and Protection of Work

From the commencement of the work until the completion thereof, the Contractor shall be solely responsible for the work covered by this Contract and for all materials and equipment used or intended to be used in the work. All destruction, injury or damage to the same from whatever cause, as well as any damage done by him, his employees, and his subcontractors in the performance of this work shall be made good by him at his own expense before the final estimate is made. He shall provide suitable means of protection for all materials and equipment intended to be used in the work and for all work in progress as well as for the completed work.

ARTICLE 6. Cleaning Up

The Contractor shall keep the site of the work free from trash, litter and waste materials and shall maintain the same in a neat and orderly condition throughout the period of work.

ARTICLE 7. Examination of Finished Work

The Contractor shall furnish the Project Manager/Architect/Engineer with every reasonable facility for ascertaining whether or not the work as performed is in accordance with the requirements and intent of the Specifications and Contract. If the Project Manager/Architect/Engineer requires it, at any time before

acceptance of the work, the Contractor shall remove or uncover such portion of the finished work as may be directed for examination. The Contractor shall restore said portion of the work to the standards required by the Specifications. Should the work thus exposed or examined above prove acceptable, the uncovering, removing, replacing of the covering, or making good of the parts removed shall be paid for by the Owner; except that any work done or materials used without suitable supervision or inspection by a representative of the Project Manager/Architect/Engineer may be ordered removed and replaced at the Contractor's expense. However, should the work exposed or examined prove unacceptable, either in whole or part, the uncovering, removing, replacing of the covering and making good of the parts removed shall be at the Contractor's expense.

The Contractor shall, when directed, remove all water which may accumulate in or about the work during construction, or prior to the final acceptance of the same, in order that proper inspection may be made.

ARTICLE 8. Safety Precautions

Precautions shall be exercised at all times for the protection of persons (including employees) and property. The safety provisions of applicable laws, and building and construction codes shall be observed.

ARTICLE 9. First Aid

The Contractor shall provide and keep upon the work site a completely equipped first-aid kit and shall provide ready access thereto at all times when men are employed on the work. He shall designate some proper person to be in charge of the first-aid work site and shall cause such person to receive proper instruction therein.

ARTICLE 10. Posting Wage Rates

The Contractor shall post at conspicuous points at the site of the project a schedule showing all determined wage rates.

ARTICLE 11. Wage Rates

In the event that the rate of wages paid for any trade or occupant in the locality where such work is being performed are under current collective agreements or understandings between bona fide organizations of labor and employer, then the wage to be paid shall be not less than such agreed wage rates, nor less than the minimum rates compiled by the Ohio Department of Commerce, Bureau of Labor and Worker Safety

Every Contractor and Subcontractor who is subject to this contract shall, as soon as he/she begins performance under his/her contract with the Owner, supply the Owner a schedule of dates of which he/she is required to pay wages to employees. He/She shall also deliver to the prevailing wage coordinator within three weeks after every pay date, a certified copy of his/her payroll which shall exhibit for each employee paid any wages, name, current address, social security number, number of hours worked each day on the pay period and the total for each week, hourly rate of pay, job classification, fringe benefits, and deductions from wages. The certification of each payroll shall be executed by the Contractor, Subcontractor, or duly appointed agent thereof and shall recite that the payroll is correct and complete and that the wage rate shown is not less than those required by the contract.

ARTICLE 12. Insurance

Requirements for all Insurance Coverages

Notices to Owner and Other Additional Insured

The policy shall provide and the Certificate shall reflect the fact the Owner and all other additional insured shall receive at least 30 days notice of any cancellation or change in the coverage (except for nominal changes) adverse to the interests of the Owner and other additional insured in order for such cancellation or change in coverage to be effective. The Owner and other additional insured shall be provided with any notice or non-renewal, regardless of the cause.

Additional Insured

The insurance required by this Section shall include the interests of the Contractor and its subcontractors, the Engineer and its subconsultants in the work, including each of their respective employees, all of whom shall be listed as insured or as additional insured. The Owner's financing agency shall also be listed as an additional insured, as necessary.

Policy Format

All policies shall be the Insurance Service Office's current form or better.

General Liability

Types of Insurance: The policy should provide at a minimum, the following coverages and the Certificate of Insurance shall so indicate whether the coverage is provided in the basic policy or in supplemental coverage to negate an exclusion in the basic policy:

- Comprehensive Form
- Premises/Operations
- Underground, Explosion and Collapse Hazard (Underground and Collapse Hazard coverage required only for General Construction Contractor and others doing excavation and other earthwork)
- Products/Completed Operations
- Contractual
- Independent Contractor
- Broad Form Property Coverage

Liability Limits: The liability limits for the coverages noted above shall be at least as noted below.

	Liability Limits	
	Each Occurrence	Aggregate
BI & PD Combined (CSL)	\$ 1,000,000	\$ 1,000,000

Automobile Liability

Types of Coverage: The policy shall include at least the following types of coverage:

- Any Auto
- All Owner Autos (Priv. Pass.)
- All Owned Autos (Other than Priv. Pass.)

- Hired Autos
- Non-Owned Autos

Liability Limits: The liability limits for the coverages noted above shall be at least as noted below.

	Liability Limits	
	Each Occurrence	Aggregate
BI & PD Combined	\$ 1,000,000	\$ 1,000,000

Owners Protective Liability Policy: The liability limits for the coverages noted above shall be at least as follows:

	Liability Limits	
	Each Occurrence	Aggregate
BI & PD Combined	\$ 1,000,000	\$ 1,000,000

Builders Risk/Installation Floater

Types of Coverage

The Contractor shall insure for the life of the contract against all loss or damage by fire, flood other than National Flood Insurance (whether in a flood hazard area or not), hurricane, windstorm, hail, lightning, explosion, riot civil commotion, aircraft, smoke, vehicles and other hazards covered by the standard current I.S.O. standard fire and extended coverage insurance endorsement. Coverage shall also be provided for all materials and equipment for which pre-incorporation payment is requested.

Limits of Liability: The limit of liability for the coverage noted above shall be not less than the amount of the Contract.

Contractor's Insurance Agent E/O Certificate

Contractor's insurance agent shall provide the Park District with Agent's Errors and Omissions Certificate in the minimum amount of One Million Dollars (\$ 1,000,000.00)

Article 13. Prompt Payment

In accordance with Section 4113.61 of the Ohio Revised Code, the prime Contractor shall make payment to each subcontractor and materialman within ten (10) calendar days after receipt of payment from the OWNER if Direct Pay for work performed or materials delivered or incorporated into the public improvement, provided that the pay estimate prepared by the Project Manager/Architect/Engineer includes work performed or materials delivered or incorporated into the public improvement by the subcontractor or materialman.

The prime Contractor shall also require that this contractual obligation be placed in all subcontractor and materialman contracts that it enters into and further require that all subcontractors and materialmen place the same payment obligations in each of their lower tier contracts. If the prime Contractor, subcontractors or materialmen subject to this provision fail to comply with the ten (10) day payment requirement, the offending party shall pay, in addition to the payment due, interest in the amount of eighteen percent (18%) per annum of the payment due, beginning on the eleventh (11th) day following the receipt of payment from the OWNER and ending on the date of full payment of the payment due plus interest.

Repeated failures to pay subcontractors and materialmen timely as defined by this statute shall result in a finding that the prime is in breach of contract and subject to all legal consequences that such a finding entails. Further, repeated failures to pay timely as defined by the statute shall result in a lower evaluation score for the prime Contractor and those subcontractors who are subject to evaluation.

Article 14. Ohio Workers' Compensation Coverage

The Contractor shall secure and maintain valid Ohio Worker's Compensation Coverage until final acceptance of the project by the OWNER. If the Contractor is a foreign corporation (incorporated under the laws of another state), then the Contractor shall have coverage in another state that provides reciprocal coverage in the State of Ohio or the foreign corporation shall maintain coverage through the Ohio Bureau of Worker's Compensation. A certificate of coverage evidencing valid worker's compensation coverage shall be submitted to the OWNER before the contract shall be executed.

The Contractor must immediately notify the OWNER in writing if it or any subcontractor fails or refuses to renew their workers' compensation coverage. Furthermore, the Contractor must notify the OWNER in writing if its or any of its subcontractor's workers' compensation policies are canceled, terminated or lapse.

The failure to maintain valid workers' compensation coverage shall be considered a breach of contract which may result in the Contractor or subcontractor being removed from the project, withholding of pay estimates and/or termination of the contract.

Article 15. Unresolved Finding For Recovery

Contractor affirmatively represents to the OWNER that it is not subject to a finding for recovery under R.C. 9.24, or that it has taken the appropriate remedial steps required under R.C. 9.24 or otherwise qualifies under that section. Contractor agrees that if this representation is deemed to be false, the contract shall be void ab initio as between the parties to this contract, and any funds paid by the state hereunder shall be immediately repaid to the state, or an action for recovery may be immediately commenced by the state for recovery of said funds.

Article 16. Drug-Free Workplace Compliance

The prime Contractor agrees to comply with all applicable state and federal laws regarding drug-free workplace. The prime Contractor shall make a good faith effort to ensure that all its employees, while working on the Project, will not purchase, transfer, use or possess illegal drugs or alcohol or abuse prescription drugs in any way.

The prime Contractor shall also require that this contractual obligation be placed in all subcontractor and materialman contracts that it enters into and further requires that all subcontractors and materialmen place the same contractual obligations in each of their lower tier contracts.

Article 17. Certification Against Debarment And Suspension

The bidder hereby certifies, except as noted below, under penalty of perjury and under other such penalties as the laws of this state and the United States of America provide, that the company or any person associated there with in the capacity of owner, partner, director, officer, principal investigator,

project director, manager, auditor, or any position involving the administration of federal funds is **not** currently under suspension, debarment, voluntary exclusion or determination of ineligibility by any federal agency; that the company or any person associated therewith in the capacity of owner, partner, director, officer, principal investigator, project director, manager, auditor, or any position involving the administration of federal funds has **not** been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past three (3) years; that the company or any person associated therewith in the capacity of owner, partner, director, manager, auditor, or any position involving the administration of federal funds does **not** have a proposed debarment pending; that the company or any person associated there with in the capacity of owner, partner, director, officer, principal investigator has **not** been indicted, convicted, or had a civil judgment rendered against the company, or themselves by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three (3) years.

If there are exceptions to any of the above clauses please set out the exceptions on the lines below. Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted, indicate below to whom it applies, initiating agency and dates of action. Providing false information may result in criminal prosecution or administrative sanctions.

Execution of this proposal on the signature portion thereof shall constitute also signature of this certification as permitted by Title 28 United States Code, Section 1746.

PREVAILING WAGE CONTRACTOR RESPONSIBILITIES

Wages and Hours on Public Works (Prevailing Wage)

[ORC Chapter 4115: Wages And Hours On Public Works \(Prevailing Wage\)](#)

General Information

Ohio's prevailing wage laws apply to all public improvements financed in whole or in part by public funds. This applies when the total overall project cost is fairly estimated, as of January 1, 2018, for New Building Construction to be at least \$250,000 and for Building Construction that is "reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting" to be estimated to cost at least \$75,000.

Thresholds are to be adjusted biennially (every 2 years) by the Director of the Ohio Department of Commerce.

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:

- a. Intentional failure to submit payroll reports as required, or knowingly submitting false or erroneous reports.
- b. Intentional misclassification of employees for the purpose of reducing wages.
- c. Intentional misclassification of employees as independent contractors or as apprentices.
- d. Intentional failure to pay the prevailing wage.
- e. Intentional failure to comply with the allowable ratio of apprentices to skilled workers as required by the regulations established by Ohio Department of Commerce, Wage and Hour Bureau.
- f. 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, Wage and Hour Bureau, for the classification of work being performed. (Website: <http://com.ohio.gov/laws/>)
 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 Chief of Wage and Hour Bureau 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 Ohio State Apprenticeship Council.
 - 2. Contractors must provide the Prevailing Wage Coordinator a copy of the Apprenticeship Certification for each apprentice on the project.
- C. Keep full and accurate payroll records available for inspection by any authorized representative of the Ohio Bureau of Wage and Hour 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 name, address, account number, and canceled checks.
 - 4. Records made in connection with the public improvement must not be removed from the State for one (1) 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 classifications, prevailing wage rates, fringe benefit amounts, and the name of the Prevailing Wage Coordinator for the project.
- 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.
 - 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 2,080.
 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. Submit the notarized Affidavit Regarding Prevailing Wages with the final statement of billing upon the completion of the project.

PROPOSAL and BID FORMS

BID PROPOSAL
DIX PARK TRAILHEAD and PICNIC AREA
PORTAGE PARK DISTRICT, OHIO

Federal ID# or Social Security #: _____

Name of Bidder: _____

Address of Bidder: _____

Phone No.: _____

Fax No.: _____

Email: _____

Contact Person: _____

Date: _____

Proposal of _____ (hereinafter called "Bidder")* a corporation,
organized and existing under the laws of the State of _____,** a partnership, or an individual doing
business as _____.

To the **Portage Park District** (hereinafter called "Owner")

Gentlemen/Ladies:

The Bidder, in compliance with your invitation for bids for the **DIX PARK Trailhead and Picnic Area, Portage County, Ohio, offers the following proposal. The project encompasses the grading and surfacing of trailhead and installation of concrete pad for future shelter.** The bidder, having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish labor, materials, equipment, and supplies and to construct the project in accordance with the contract documents, within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the contract documents, of which this proposal is a part.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in the written "Notice to Proceed" of the Owner and to Substantially Complete with the project within 60 days after Notice to Proceed. Bidder further agrees to pay as liquidated damages, the sum of \$250.00 for each consecutive calendar day thereafter as hereinafter provided in the General Conditions.

GENERAL CONTRACT BASE BID

Total for the sum of: \$ _____

(written amount)

ALTERNATE #1 – Chip and Seal

Total for the sum of \$ _____

(written amount)

BID TABS: Bid totals above shall reflect the bid tabs by item as detailed in the following pages

SCHEDULE Bidder has included a Resource Loaded Project Schedule with their bid

The bidder agrees that this bid shall be good and may not be withdrawn for a period of sixty (60) calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, bidder will execute the formal contract attached within ten (10) days and deliver a Surety Bond or Bonds as required by the General conditions.

The bid security attached in the sum of _____ (\$ _____) is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

I _____ representing _____
(print name of representative) (print name of company)

submit the above Base Bid and Alternates for the DIX PARK Picnic Area

Signed _____ on this day _____
(representative) (date)

**DIX PARK PICNIC AREA
BASE BID**

Bid Item No	ODOT Item No	Bid Item Description	Unit	(A)	(B)	(C)	(D) = (B + C)	(A x D)
				Estimated Quantity	Material	Labor	Total Unit Price	Total Price for Item (PPD)
1	201	Clearing and Grubbing including brush/small trees	L.S.	1				
2	203	Excavation (CUT)	Cu. Yd.	12				
3	203	Embankment (FILL)	Cu. Yd.	500				
4	203	Topsoil Stripped and Stockpiled on Site	Cu. Yd.	112				
5	204	Subgrade Compaction and Proof Rolling	Sq. Yd.	95				
6	304	Item 304 - Aggregate Base - Pavillion Pad	Cu. Yd.	63				
7	304	Item 304 - 4" Aggregate Base - New Gravel Path Sections	Cu. Yd.	8				
8	Special	3" #10 Chips and Dust - Walk	Cu. Yd.	28				
9	Special	Concrete Piers	Each	6				
10	608	6" Non Reinforced Concrete Picnic Pad	SQ FT	864				

Bid Item No	ODOT Item No	Bid Item Description	Unit	(A)	(B)	(C)	(D) = (B + C)	(A x D)
				Estimated Quantity	Material	Labor	Total Unit Price	Total Price for Item
11	653	6" Topsoil Furnished and Placed	Cu. Yd.	133				
12	659	Seeding and Mulching	Sq. Yd.	800				
13	624	Mobilization and Permits	Lump	1				
14	623	Construction Staking	Lump	1				
15	832	Temporary Sediment and Erosion Control	Lump	1				
16	605	Underdrain Pipe and Filter Fabric	FOOT	39				
Sub Total Items								
Grand Total Items								

DIX PARK PICNIC AREA

BID ALTERNATE #1

Bid Item No	ODOT Item No	Bid Item Description	Unit	(A)	(B)	(C)	(D) = (B + C)	(A x D)
				Estimated Quantity	Material	Labor	Total Unit Price	Total Price for Item (PPD)
1	201	Clearing and Grubbing including brush/small trees	L.S.	1				
2	203	Excavation (CUT) and Haul Away	Cu. Yd.	12				
3	203	Embankment (FILL)	Cu. Yd.	500				
4	203	Topsoil Stripped and Stockpiled on Site	Cu. Yd.	112				
5	204	Subgrade Compaction and Proof Rolling	Sq. Yd.	95				
6	304	Item 304 - Aggregate Base - Pavillion Pad	Cu. Yd.	63				
7	304	Item 304 - 4" Aggregate Base - New Gravel Path Sections	Cu. Yd.	8				
8	411	2" Limestone # 411 Screenings	Cu. Yd.	19				
9	408	Prime Coat @ 0.05 Gal/SY - Service Yard	gal	17				
10	Special	Chip and Seal	Sq. Yd.	328				

Bid Item No	ODOT Item No	Bid Item Description	Unit	(A)	(B)	(C)	(D) = (B + C)	(A x D)
				Estimated Quantity	Material	Labor	Total Unit Price	Total Price for Item
11	Special	Concrete Piers	Each	6				
12	608	6" Non Reinforced Concrete Picnic Pad	SQ FT	864				
13	653	6" Topsoil Furnished and Placed	Cu. Yd.	133				
14	659	Seeding and Mulching	Sq. Yd.	800				
15	624	Mobilization and Permits	Lump	1				
16	623	Construction Staking	Lump	1				
17	832	Temporary Sediment and Erosion Control	Lump	1				
18	605	Underdrain Pipe and Filter Fabric	FOOT	39				
Sub Total Items								
Grand Total Items								

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O.R.C. 5719.042

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CERTIFICATION OF COMPLIANCE WITH SECTION 3517.13 OF THE O.R.C.

CONTRACTS AWARDED TO INDIVIDUAL, PARTNERSHIP, OTHER UNINCORPORATED BUSINESS, ASSOCIATION (INCLUDING A PROFESSIONAL ASSOCIATION ORGANIZED UNDER CHAPTER 1785), ESTATE, OR TRUST MUST CONTAIN THE FOLLOWING CERTIFICATION:

Any contract for goods or services costing more than five hundred dollars must contain a certification by the contracting entity (vendor) that all of the following persons are in compliance with 3517.13(1)(1), limiting campaign contributions to the holder of the public office having the ultimate responsibility for the award of the contract:

- THE INDIVIDUAL
- EACH PARTNER OR OWNER OF THE PARTNERSHIP OR UNINCORPORATED BUSINESS
- EACH SHAREHOLDER OF THE ASSOCIATION
- EACH ADMINISTRATOR OF THE ESTATE
- EACH EXECUTOR OF THE ESTATE
- EACH TRUSTEE OF THE TRUST
- EACH SPOUSE OF ANY OF THE PRECEEDING PERSONS
- EACH CHILD SEVEN YEARS TO SEVENTEEN YEARS OF AGE OF ANY OF THE PRECEEDING PERSONS
- ANY COMBINATION OF THE PERSONS LISTED ABOVE

CONTRACTS A WARDED TO A CORPORATION OR BUSINESS TRUST (EXCEPT A PROFESSIONAL ASSOCIATION ORGANIZED UNDER CHAPTER 1785) MUST CONTAIN THE FOLLOWING CERTIFICATION:

Any contract for goods or services costing more than five hundred dollars must contain a certification by the contracting entity (vendor) that all of the following persons are in compliance with 3517. 13(J)(1), limiting campaign contributions to the holder of the public office having the ultimate responsibility for the award of the contract:

- EACH OWNER OF MORE THAN TWENTY PER CENT OF THE CORPORATION OR BUSINESS TRUST
- EACH SPOUSE OF AN OWNER OF MORE THAN TWENTY PER CENT OF THE CORPORATION OR BUSINESS TRUST
- EACH CHILD SEVEN YEARS TO SEVENTEEN YEARS OF AGE OF AN OWNER OF MORE THAN TWENTY PER CENT OF THE CORPORATION OR BUSINESS TRUST
- ANY COMBINATION OF THE PERSONS LISTED ABOVE

It is hereby certified that all of the persons listed above are in compliance with section 3517.13(1)(1) or 3517.13(J)(1) of the Ohio Revised Code.

IF CONTRACTING ENTITY IS A NONPROFIT CORPORATION ESTABLISHED UNDER ORC CHAPTER 1702, THE UNDERSIGNED CERTIFIES THAT SECTIONS 3517.13(1)(1) AND 3517.13(J)(1) ARE NOT APPLICABLE TO THE CONTRACTING ENTITY.

PRINTED NAME

TITLE

SIGNATURE

DATE

AFFIDAVIT OF COMPLIANCE WITH OHIO REVISED CODE SECTION 3517.13

STATE OF OHIO)
)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 1785), estate, or trust.
 - ☐ Corporation organized and existing under the laws of the State of _____
 - ☐ Labor organization
 - ☐ Other _____
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.

Affiant further sayeth naught.

By _____

Title _____

SWORN TO BEFORE ME and subscribed in my presence this _____ day of _____, 20_____.

Notary Public _____

My commission expires _____

NON-COLLUSION AFFIDAVIT

State of Ohio)
)ss
County of _____)

Bid Identification: DIX PARK PICNIC AREA, Portage Park District, Ohio

CONTRACTOR _____, being first duly sworn, deposes and says that he/she is _____ (sole owner, a partner, president, secretary, etc.) of _____ the party making the foregoing BID; that such BID is not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization, or corporation; that such Bid is genuine and not collusive or sham; that said BIDDER has not directly or indirectly induced or solicited any other BIDDER to put in a false or sham BID, and has not directly or indirectly colluded, conspired, connived, or agreed with any BIDDER or anyone else to put in a sham BID, or that any one shall refrain from bidding; that said BIDDER has not in any manner, directly or indirectly, sought by agreement, communication or conference with anyone to fix the BID price of said BIDDER or of any other BIDDER, or to fix any overhead, profit, or cost element of such BID price, or of that of any other BIDDER, or to secure any advantage against the OWNER awarding the contract or anyone interested in the proposed contract; that all statements contained in such BID are true; and, further, that said BIDDER has not, directly or indirectly, submitted his/her BID price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid any fee or will not pay any fee in connection therewith, to any corporation, partnership, company, association, organization, BID depository, or to any member or agent thereof, or to any other individual except to such person or persons as have a partnership or other financial interest with said BIDDER in his/her general business.

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

Affiant

Notary Public

INCOME TAX AFFIDAVIT

STATE OF _____)
)ss

COUNTY OF _____)

_____ being first duly sworn deposes and says as follows:

1. That he holds the office of _____ in _____;
Title Company
2. That said Company will comply in all respects with the Income Tax Ordinances and Regulations, within the City of Streetsboro or Portage County, as the same pertain to said construction project;
3. More affiant sayeth not.

Authorized Signature

Swore to a subscribed in my presence, this _____ day of _____, 20__.

Notary Public, State of Ohio

My commission expires _____, 20__.

Recorded in _____ County

CERTIFICATION AGAINST DEBARMENT AND SUSPENSION

The bidder hereby certifies, except as noted below, under penalty of perjury and under other such penalties as the laws of this state and the United States of America provide, that the company or any person associated therewith in the capacity of owner, partner, director, officer, principal investigator, project director, manager, auditor, or any position involving the administration of federal funds is **not** currently under suspension, debarment, voluntary exclusion or determination of ineligibility by any federal agency; that the company or any person associated therewith in the capacity of owner, partner, director, officer, principal investigator, project director, manager, auditor, or any position involving the administration of federal funds has **not** been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past three (3) years; that the company or any person associated therewith in the capacity of owner, partner, director, manager, auditor, or any position involving the administration of federal funds does **not** have a proposed debarment pending; that the company or any person associated therewith in the capacity of owner, partner, director, officer, principal investigator has **not** been indicted, convicted, or had a civil judgment rendered against the company, or themselves by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three (3) years.

If there are exceptions to any of the above clauses please set out the exceptions on the lines below. Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted, indicate below to whom it applies, initiating agency and dates of action. Providing false information may result in criminal prosecution or administrative sanctions.

Execution of this proposal on the signature portion thereof shall constitute also signature of this certification as permitted by Title 28 United States Code, Section 1746.

Exceptions:

Signed: _____

Title: _____

UNRESOLVED FINDING FOR RECOVERY CERTIFICATION

I, _____
(Name of person signing affidavit) (Title)

do hereby certify that _____ **does not**
(Company or Individual Name)

have an unresolved finding for recovery issued by the Auditor of the State of Ohio as

defined by Ohio Revised Code (ORC) Section 9.24 as of _____, 20____.
(Date)

Signature of Officer or Agent

Name (Print)

STATE OF _____ (_____
(ss:
COUNTY OF _____ (_____

Sworn to and subscribed in my presence this ____ day of _____, 20____.

Notary Public, State of Ohio

My commission expires _____, 20____.

Recorded in _____ County

DIX PARK TRAILHEAD and PICNIC AREA
BID GUARANTY AND CONTRACT BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned,
_____¹ as Principal and
_____² as Surety, are hereby held and firmly bound unto
_____³ hereinafter called the Obligee, in the penal sum of the
dollar amount of the bid submitted by the Principal to the Obligee on this date _____ to
undertake the project known as:

DIX PARK TRAILHEAD and PICNIC AREA

The penal sum referred to herein shall be the dollar amount of the Principal's bid to the Obligee, incorporating any additive or deductive alternate proposals made by the Principal on the date referred to above to the Obligee, which are accepted by the Obligee. In no case shall the penal sum exceed the amount of _____ DOLLARS (\$_____). If this item is left blank, the penal sum will be the full amount of the Principal's bid, including alternates. Alternatively, if completed, the amount stated must not be less than the full amount of the bid, including alternatives in dollars and cents. A percentage is not acceptable.

For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above-named Principal has submitted a bid on the above referred to project;

NOW, THEREFORE, if the Obligee accepts the bid of the Principal and the Principal fails to enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material; and in the event the Principal pays to the Obligee the difference not to exceed ten percent of the penalty hereto between the amount specified in the bid and such larger amount for which the Obligee may in good faith contract with the next lower bidder to perform the work covered by the bid; or in the event the Obligee does not award the contract to the next lower bidder and resubmits the project for bidding, the Principal will pay the Obligee the difference, not to exceed ten percent of the penalty hereof between the amount specified in the bid, or the costs, in connection with the resubmission, or printing new contract documents, required advertising and printing and mailing notices to prospective bidders, whichever is less, then this obligation shall be null and void, otherwise to remain in full force and effect. If the obligee accepts the bid of the Principal and the Principal within ten days after the awarding of the contract, enters into a proper contract in accordance with the bid, plans, details, specifications, and bills of material, which said contract is made a part of this bond the same as though set forth herein; and

¹ Here insert full name or legal title of Contractor and address

² Here insert full name or legal title of Surety

³ Here insert full name or legal title of Owner/Obligee

(cont'd)

Bid Guaranty/Contract Bond pg2

IF THE SAID Principal shall well and faithfully perform each and every condition of such contract; and indemnify the Obligee against all damage suffered by failure to perform such contract according to the provisions thereof and in accordance with the plans, details, specifications, and bills of material therefore; and shall pay all lawful claims of subcontractors, materialmen, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said contract: we agreeing and assenting that this undertaking shall be for benefit of any subcontractors, materialmen or laborer having a just claim, as well as for the Obligee herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

THE SAID Surety hereby stipulates and agrees that no modifications, omissions, or additions, in or to the terms of said contract or in or to the plans and specifications therefore shall in any way affect that obligations of said Surety on this bond, and it does hereby waive notice of any such modifications, omissions or additions to the terms of the contract or to the work or to the specifications.

SIGNED AND SEALED this _____ day of _____, 20__.

Principal By:

Title:

Surety By:

Attorney-in-Fact

Surety Company Address:

Surety Agent's Name/Address:

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The bidder may submit any additional information he desires.

1. Name of bidder?
2. Permanent main office address?
3. When organized?
4. If a corporation, where incorporated?
5. Federal Identification Number?
6. How many years have you been engaged in the contracting business under your present firm or trade name?
7. Contracts on hand (schedule these, showing amount of each contract and the appropriate anticipated dates of completion)?
8. General character of work performed by your company?
9. Have you ever failed to complete any work awarded to you? If so, where and why?
10. Have you ever defaulted on a contract? If so, where and why?
11. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed?
12. List your major equipment available for this contract?
13. Experience in construction work similar in importance to this project?
14. Background and experience of the principal members of your organization, including the officers?
15. Credit available?
16. Give bank reference?
17. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Portage Park District, Ohio?
18. The undersigned hereby authorizes and requests one person, firm, or corporation to furnish any information requested by the Portage Park District, Ohio, in verification of the recitals comprising this Statement of Bidder's Qualifications.

PROPOSED SUBCONTRACTORS BREAKDOWN

Contractor Name	Address	Phone	Goods/ Services	Total Contracts	Fed I.D. No.	Reg' d MBD(Y/N)

Sworn to and ascribed before me this _____ day of _____, 20____

Company Name

Notary Public Signature

Notary Public in and for County of _____

Signature Title

My Commission Expires _____

CONTRACT FORMS

DIX PARK TRAILHEAD and PICNIC AREA CONTRACT

THIS AGREEMENT is made this _____ day of _____, 20____, by and between _____, hereinafter called the "Contractor" and the Portage Park District, hereinafter called the "Owner".

The Contractor and the Owner for the considerations stated herein mutually agree as follows:

ARTICLE 1. Statement of Work

The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment, supplies, and services, including utility and transportation services, and perform and complete all work required for the construction of the improvements embraced in the project and required supplemental work for the project all in strict accordance with the Contract Documents.

ARTICLE 2. The Contract Price

The Owner will pay the Contractor at the lump sum price stipulated in the Bid for the respective items of work completed for the sum not to exceed _____ subject to additions and deductions as provided in the Contract Documents.

ARTICLE 3. Contract

The executed Contract Documents shall consist of the following:

- a. This Agreement
- b. Addenda
- c. Invitation to Bid
- d. Instructions to Bidders
- e. Bid Forms
- f. Signed copy of bid
- g. Work Specifications (including all plans, drawings, etc.)
- h. General and Special Provisions
- i. Technical Specifications
- j. State Requirements

(cont'd)
(Contract p2)

This Agreement, together with other documents enumerated in this ARTICLE 3, which said other documents are as fully a part of the Contract as if hereto attached or herein repeated, forms the Contract between the parties hereto. In the event that any provision, in any component part of this Contract conflicts with any provision of any other component part, the provision of the component part first enumerated in this ARTICLE 3 shall govern except as otherwise specifically stated.

IN WITNESS WHEREOF, the parties hereto have caused this AGREEMENT to be executed in three original copies on the day and year first above written.

CONTRACTOR:

OWNER: **Portage Park District**

Signature

Signature

(Typed Name)

(Typed name)

Title

Title

Vendor

Federal Identification Number:

Certifications:

I, _____, certify that I am the _____ of the corporation
(name) (title)
named as Contractor herein; that _____ who signed this Agreement on behalf
(name)
of the Contractor, was then _____ of said corporation; that said Agreement was
(title)
duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope
of its corporate powers.

CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, Portage County Assistant Prosecutor, the duly authorized and acting legal representative of the Portage Park District, do hereby certify as follows:

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

Pursuant to Ohio Revised Code 153.44 I hereby certify that this contract and the contract documents incorporated herein have been executed in accordance with Ohio Revised Code 153.01 through 153.60 inclusive.

Name, Title

Date: _____

AUDITOR'S CERTIFICATE

I hereby certify that the amount of \$_____ required to meet the obligation for the above contract has lawfully been appropriated for such purposes and is in the treasury to the credit of Fund No. _____

free from any obligation or certificate now outstanding.

Janet Esposito, Portage County Auditor Signature

Date: _____



INDEPENDENT CONTRACTOR/WORKER ACKNOWLEDGMENT

Ohio Public Employees Retirement System
277 East Town Street, Columbus, Ohio 43215-4642

Employer Outreach: 1-888-400-0965
www.opers.org

This form is to be completed if you are an individual who begins providing personal services to a public employer on or after Jan. 7, 2013 but are not considered by the public employer to be a public employee and will not have contributions made to OPERS. This form must be completed not later than 30 days after you begin providing personal services to the public employer. **COMPLETE THIS FORM IF YOUR COMPANY EMPLOYS 5 EMPLOYEES OR LESS.**

STEP 1: Personal Information

Social Security Number

— — —

First Name

MI

Last Name

— — —

—

— — —

Name of Current Employer

— — —

STEP 2: Public Employment Information

Name of Public Employer for Which You Are Providing Personal Services

— — —

Employer Contact

First Name

MI

Last Name

— — —

—

— — —

Employer Code

— — —

Employer Contact Phone Number

— — —

Service Provided to Public Employer

— — —

— — —

Start Date of Service

Month

Day

Year

— / — / —

End Date of Service

Month

Day

Year

— / — / —

STEP 3: Acknowledgment

The public employer identified in Step 2 has identified you as an independent contractor or another classification other than a public employee. Ohio law requires that you acknowledge in writing that you have been informed that the public employer identified in Step 2 has classified you as an independent contractor or another classification other than a public employee for the services described in Step 2 and that you have been advised that contributions to OPERS will not be made on your behalf for these services.

If you disagree with the public employer's classification, you may contact OPERS to request a determination as to whether you are a public employee eligible for OPERS contributions for these services. Ohio law provides that a request for a determination must be made within five years after you begin providing personal services to the public employer, unless you are able to demonstrate through medical records to the Board's satisfaction that at the time the five-year period ended, you were physically or mentally incapacitated and unable to request a determination.

By signing this form, you are acknowledging that the public employer for whom you are providing personal services has informed you that you have been classified as an independent contractor or another classification other than a public employee and that no contributions will be remitted to OPERS for the personal services you provide to the public employer. This acknowledgment will remain valid as long as you continue to provide the same services to the same employer with no break in service regardless of whether the initial contract period is extended by any additional agreement of the parties. You also acknowledge that you understand you have the right to request a determination of your eligibility for OPERS membership if you disagree with the public employer's classification.

This form must be retained by the public employer and a copy sent to OPERS. The public employer's failure to retain this acknowledgment may extend your right to request a determination beyond the five years referenced above.

Signature_____

Do not print or type name

Date

NOTICE OF AWARD

TO: _____

Date: _____

Project Title: **DIX PARK TRAILHEAD and PICNIC AREA**

The Owner has considered the bid submitted by you on _____, 20____, for the above-described work in response to its Advertisement for Bids and Information for Bidders.

You are hereby notified that your bid has been accepted in the amount of \$_____ for the _____ (Bid Alternate Chosen)

You are required by the Information for Bidders to execute the Agreement and furnish the required contractor's contract bond, if applicable, and certificates of insurance within ten (10) calendar days from the date of this notice to you.

If you fail to execute said Agreement and to furnish said bond within ten (10) days from the date of this notice, said Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your bid as abandoned and as a forfeiture of your bid guaranty subject to the liability as set forth in Section 153.54 of the Ohio Revised Code. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the Owner.

Owner: Portage Park District

_____	_____	_____
Name	Signature	Title

ACKNOWLEDGMENT OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by
_____ on this _____ day of _____, 20____.

Name

By: _____
Name Signature Title

NOTICE TO PROCEED

TO: _____

Date: _____

Project Description: DIX PARK PICNIC AREA

You are hereby notified to commence work in accordance with the Agreement dated _____,
20____, on or before _____, 20____, and you are to complete the work within
_____ (____) consecutive calendar days thereafter. The date of completion of all work is
therefore _____, 20____.

Owner: Portage Park District

Name	Signature	Title
------	-----------	-------

ACKNOWLEDGMENT OF NOTICE

Receipt of the above Notice To Proceed is hereby acknowledged by
_____ on this _____ day of _____, 20____.
Name

By: _____
Name Signature Title

CHANGE ORDER

Change Order No. _____

Project: **DIX PARK TRAILHEAD and PICNIC AREA**

Date: _____

- I. The following changes are hereby made to the contract documents (attach documentation):
- II. The following change is made to the contract price:

Original contract price	\$ _____
Previous change/extras	\$ _____
This change/extra	\$ _____
Subtotal	\$ _____
Deductions	\$ _____
Net total	\$ _____

- III. The following change is made to the contract time:

The contract time will be (increased) (decreased) by ____ calendar days, making the date for completion of all work _____.

- IV. ____ There will be no claims for damages resulting from this change.
- ____ Claims for damages resulting from this change are anticipated for such categories as _____ and should not exceed \$ _____.

Change requested by _____	Date _____
Change recommended by _____	Date _____
Change accepted by _____	Date _____

**AFFIDAVIT OF CONTRACTOR OR SUBCONTRACTOR
FOR MINIMUM WAGES**

STATE OF _____)
)ss

COUNTY OF _____)

I, _____, _____, of the
(Affiant) (Title)

_____, do hereby certify that the wages paid
(Name of Contractor/Subcontractor)

to all employees for the full number of hours worked in connection with _____

_____ during the period from _____ to
(Description of Project) (Start)

_____ is in accordance with the minimum rate of wages prescribed by
(End)

the contract documents.

I further certify that no rebates or deductions from any wages due any person have been directly
or indirectly made other than those provided by law.

(Signature of officer/ agent)

Sworn to before me this _____ day of _____, 20_____.

Notary Public

The above affidavit must be executed and sworn to by the officer or agent or the contractor or subcontractor who supervises the payment of employees, before the owner will release the surety and/or make a final payment due under the terms of the Contract.

AFFIDAVIT OF COMPLETION

STATE OF _____)
)ss
COUNTY OF _____)

being first duly sworn, deposes and says that he/she is _____
(sole owner, a partner, president, secretary, etc.)

of _____
(Company Name)

The Party that entered into a contract with the PORTAGE PARK DISTRICT on the
day of _____ 20 ____ for the construction of the DIX PARK Picnic Area Project, and that all
claims and obligations for services, labor, tools, appliances, materials, equipment, and damages to
personal property and/or bodily injury arising in connection with this contract have been satisfactorily
settled, and that the rate of wages paid has been in compliance with Chapter 4115 of the Ohio Revised
Code.

SIGNED: _____

Sworn to and subscribed before me, a Notary Public this
_____ day of _____, 20____.

Notary Public

My commission expires _____, 20____.
(SEAL)

Prevailing Wage Rate

Skilled Crafts

Name of Union: Cement Mason Bricklayer Local 97 Hwy A

Change # : LCN01-2022sksHvyHwy

Craft : Bricklayer Effective Date : 06/08/2022 Last Posted : 06/08/2022

	BHR	Fringe Benefit Payments							Irrevocable Fund	Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Cement Mason Bricklayer Sewer Water Works A	\$31.40	\$9.75	\$8.30	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$49.95	\$65.65
Apprentice	Percent										
1st year	70.00	\$21.98	\$9.75	\$8.30	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$40.53	\$51.52
2nd year	80.00	\$25.12	\$9.75	\$8.30	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$43.67	\$56.23
3rd year	90.00	\$28.26	\$9.75	\$8.30	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$46.81	\$60.94

Special Calculation Note : NOT FOR BUILDING CONSTRUCTION.

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 :

(A) Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site Heavy Construction, Airport Construction Or Railroad Construction Work.

(B) Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control,Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

Prevailing Wage Rate

Skilled Crafts

Name of Union: Cement Mason Bricklayer Local 97 HevHwy B

Change # : LCN01-2022sksHvyHwy

Craft : Bricklayer Effective Date : 06/08/2022 Last Posted : 06/08/2022

	BHR	Fringe Benefit Payments							Irrevocable Fund	Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Cement Mason Bricklayer Power Plants Tunnels Amusement Parks B	\$32.39	\$9.75	\$8.30	\$0.51	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$50.95	\$67.15
Apprentice	Percent										
1st year	70.00	\$22.67	\$9.75	\$8.30	\$0.51	\$0.00	\$0.00	\$0.00	\$0.00	\$41.23	\$52.57
2nd year	80.00	\$25.91	\$9.75	\$8.30	\$0.51	\$0.00	\$0.00	\$0.00	\$0.00	\$44.47	\$57.43
3rd year	90.00	\$29.15	\$9.75	\$8.30	\$0.51	\$0.00	\$0.00	\$0.00	\$0.00	\$47.71	\$62.29

Special Calculation Note : NOT FOR BUILDING CONSTRUCTION.

Ratio :

3 Journeymen to 1 Apprentice
6 Journeymen to 2 Apprentice
9 Journeymen to 2 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 :

(A) Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site Heavy Construction, Airport Construction Or Railroad Construction Work.

(B) Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control,Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

Prevailing Wage Rate

Skilled Crafts

Name of Union: Cement Mason Statewide HevHwy

Change # : OCR01-2022sksCementHevHwy

Craft : Cement Mason Effective Date : 05/05/2022 Last Posted : 05/05/2022

	BHR	Fringe Benefit Payments							Irrevocable Fund	Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Cement Mason	\$32.49	\$8.45	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$0.00	\$51.26	\$67.50
Apprentice	Percent										
1st Year	70.00	\$22.74	\$8.45	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$41.51	\$52.88
2nd Year	80.00	\$25.99	\$8.45	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$44.76	\$57.76
3rd Year	90.00	\$29.24	\$8.45	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$48.01	\$62.63

Special Calculation Note : Other \$0.07 is for International Training Fund

Ratio :

1 Journeymen to 1 Apprentice
2 to 1 thereafter

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 : (A) 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.

*For Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work, Pollution Control, Sewer Plant, Waste & Water Plant, Water Treatment Facility Construction work in the following Counties: Ashtabula, Cuyahoga, Fulton, Geauga, Hancock, Henry, Lake, Lucas, Putnam and Wood Counties, those counties will use the Cement Mason Statewide Heavy Highway Exhibit B District 1 Wage Rate.

Details :

This rate replaces the previous Cement Mason Heavy Highway Statewide Rates (Exhibit A and Exhibit B rates), except for Cement Mason Statewide Heavy Highway Exhibit B Dist 1. Sks

Prevailing Wage Rate

Skilled Crafts

Name of Union: Cement Mason & Plasterer Local 109

Change # : LCN01-2022sksLoc109

Craft : Cement Effective Date : 06/01/2022 Last Posted : 06/01/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Cement Mason	\$31.74		\$9.09	\$7.35	\$0.70	\$0.00	\$4.74	\$0.07	\$0.00	\$0.00	\$53.69	\$69.56
Plasterer	\$30.61		\$8.75	\$7.35	\$0.70	\$0.00	\$4.75	\$0.07	\$0.00	\$0.00	\$52.23	\$67.53
Apprentice Cement Mason	Percent											
1st year	70.00	\$22.22	\$9.09	\$7.35	\$0.70	\$0.00	\$4.74	\$0.07	\$0.00	\$0.00	\$44.17	\$55.28
2nd year	79.98	\$25.39	\$9.09	\$7.35	\$0.70	\$0.00	\$4.74	\$0.07	\$0.00	\$0.00	\$47.34	\$60.03
3rd year	90.00	\$28.57	\$9.09	\$7.35	\$0.70	\$0.00	\$4.74	\$0.07	\$0.00	\$0.00	\$50.52	\$64.80
Plasterer Apprentice												
1st year	67.53	\$21.43	\$8.75	\$7.35	\$0.70	\$0.00	\$4.75	\$0.07	\$0.00	\$0.00	\$43.05	\$53.77
2nd year	77.17	\$24.49	\$8.75	\$7.35	\$0.70	\$0.00	\$4.75	\$0.07	\$0.00	\$0.00	\$46.11	\$58.36
3rd year	86.80	\$27.55	\$8.75	\$7.35	\$0.70	\$0.00	\$4.75	\$0.07	\$0.00	\$0.00	\$49.17	\$62.95

Special Calculation Note : Other is for International Training.

Ratio :

1 Journeymen to 1 Apprentice
5 Journeymen to 2 Apprentice
10 Journeyman to 3 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

CARROLL, HOLMES, MEDINA, PORTAGE, STARK, SUMMIT, TUSCARAWAS, WAYNE

Special Jurisdictional Note :

Details :

Finishers when applying colorshake shall be paid an additional \$2.00 per DAY.
Swing Scaffolds up to 50 feet shall be paid \$0.25 above the Journeymen rate.
Swing Scaffolds over 50 feet shall be paid \$0.35 above the Journeymen rate.

Prevailing Wage Rate

Skilled Crafts

Name of Union: Labor HevHwy 2

Change # : LCN01-2022sksLaborHevHwy2

Craft : Laborer Group 1 Effective Date : 06/01/2022 Last Posted : 06/01/2022

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECE T (*)	MIS C (*)		
Classification											
Laborer Group 1	\$34.95	\$7.70	\$3.95	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$47.15	\$64.62
Group 2	\$35.12	\$7.70	\$3.95	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$47.32	\$64.88
Group 3	\$35.45	\$7.70	\$3.95	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$47.65	\$65.37
Group 4	\$35.90	\$7.70	\$3.95	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$48.10	\$66.05
Watch Person	\$27.25	\$7.70	\$3.95	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$39.45	\$53.08
Apprentice	Percent										
0-1000 hrs	60.00	\$20.97	\$7.70	\$3.95	\$0.45	\$0.00	\$0.00	\$0.10	\$0.00	\$33.17	\$43.66
1001-2000 hrs	70.02	\$24.47	\$7.70	\$3.95	\$0.45	\$0.00	\$0.00	\$0.10	\$0.00	\$36.67	\$48.91
2001-3000 hrs	80.00	\$27.96	\$7.70	\$3.95	\$0.45	\$0.00	\$0.00	\$0.10	\$0.00	\$40.16	\$54.14
3001-4000 hrs	90.00	\$31.46	\$7.70	\$3.95	\$0.45	\$0.00	\$0.00	\$0.10	\$0.00	\$43.66	\$59.38
More Than 4000 hrs	100.00	\$34.95	\$7.70	\$3.95	\$0.45	\$0.00	\$0.00	\$0.10	\$0.00	\$47.15	\$64.62

Special Calculation Note : Watchman has no Apprentices. Tunnel Laborer rate with air-pressurized add \$1.00 to the above wage rate.

Ratio :

Jurisdiction (* denotes special jurisdictional note) :

1 Journeymen to 1 Apprentice
3 Journeymen to 1 Apprentice thereafter

ASHTABULA, ERIE, HURON, LORAIN,
LUCAS, MAHONING, MEDINA, OTTAWA,
PORTAGE, SANDUSKY, STARK, SUMMIT,
TRUMBULL, WOOD

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, Flagperson, 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, Screedperson, 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), Yarnier, 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, Gunitite 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.

Prevailing Wage Rate

Skilled Crafts

Name of Union: Labor Local 894 Building

Change # : LCN01-2021fbLoc894

Craft : Laborer Effective Date : 01/12/2021 Last Posted : 01/12/2021

	BHR	Fringe Benefit Payments							Irrevocable Fund	Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECE T (*)	MISC (*)		
Classification											
Laborer Group 1	\$32.92	\$7.00	\$3.80	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$44.22	\$60.68
Laborer Group 2	\$33.07	\$7.00	\$3.80	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$44.37	\$60.91
Laborer Group 3	\$33.12	\$7.00	\$3.80	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$44.42	\$60.98
Laborer Group 4	\$33.42	\$7.00	\$3.80	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$44.72	\$61.43
Laborer Group 5	\$27.95	\$7.00	\$3.80	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$39.25	\$53.22
Apprentice	Percent										
1ST 1-1000 hrs	60.00 \$19.75	\$7.00	\$3.80	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$31.05	\$40.93
2nd 1000-2000 hrs	70.00 \$23.04	\$7.00	\$3.80	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$34.34	\$45.87
3rd 2000-3000 hrs	80.00 \$26.34	\$7.00	\$3.80	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$37.64	\$50.80
4th 3000-4000 hrs	90.00 \$29.63	\$7.00	\$3.80	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$40.93	\$55.74
More than 4000 hrs	100.00 \$32.92	\$7.00	\$3.80	\$0.40	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$44.22	\$60.68

Special Calculation Note : \$0.10 for LECET is for Labor Management

Ratio :

1 Apprentice to 1 Journeymen
1 Apprentice to 4 Journeymen

Jurisdiction (* denotes special jurisdictional note) :

MEDINA, PORTAGE, SUMMIT

Special Jurisdictional Note :

Details :

Group 1

Building & Construction Laborer, Welder Helper, Carpenter Tender, Landscape Laborer, Mason Tender, Concrete Bucket Tender, Concrete & Construction Specialist, Asbestos Laborer, Toxic/Hazardous Waste Laborer, Lead Removal, Level D

Group 2

Air Driven Boring Machine, Tamper Operator, Asphalt Raker, Paving Bed Maker, Concrete Puddler on Building Work, Concrete Batch Dumper, Materials Mixer, Wire Mesh Handler, Hook-up on Demolition Work, Scaffold Erector, Structural, Precast Erector, Power Tools - Air, Gas or Electric, Hazardous Waste Laborer, Lead Removal Level C

Group 3

Pipe Layer, Rock Driller, Mucker-Tunnel, Burner, Form Setter, Power Saw Jackhammer, Bottom Man, Hod Carrier, Power Buggy or Power Wheelbarrow, Bob Cat, Skid Steer Work and or similar, Hazardous Waste Laborer, Lead Removal Level B

Group 4

Gunnite Nozzle Man, Tunnel Miner, Water Link Caulker, Dynamite Man, Structural Precast Welder, Pump Hose Nozzle Man, Hazardous Waste Laborer, Lead Removal Level A

Group 5

Watchman

Hazardous Waste Removal and Lead Abatement:

For Laborers, working in an exclusive or "hot" area with toxic or hazardous materials, one of the following personal protective equipment ensembles will be required.

Level A

When the area has been determined to contain extremely toxic contaminants or contaminants unknown but may be expected to be extremely toxic and/or immediately dangerous to life and health. This ensemble includes a fully encapsulated chemical suit, self contained breathing apparatus (SCBA) or airline fed respirator, and various types and numbers of boots and gloves; cool vests and voice-activated radios are optional equipment sometimes worn.

Level B

Protective equipment includes a chemically resistant splash suit and a SCBA or airline respirator. This ensemble is required when the situation is very hazardous, such as oxygen deficient atmospheres, IDLH atmospheres, or confined space entries, but the risk of skin exposure is not as great as in Level A situation.

Level C

Protective equipment includes a protective suit and an air purifying respirator (APR) with the appropriate filter canisters. The ensemble is used when the contaminants are reliably known not to be hazardous to the skin and not IDLH (Immediately Dangerous to Life or Health) and correct filter protection is available.

Level D

Protective Equipment to be worn only in established "safe zones" may consist of, from normal work clothes to normal skin protection such as gloves, face shields goggles, coveralls and occasionally respiratory protection.

Prevailing Wage Rate

Skilled Crafts

Name of Union: Operating Engineers - Building Local 18 - Zone I

Change # : LCN01-2022sksLoc18

Craft : Operating Engineer Effective Date : 05/25/2022 Last Posted : 05/25/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Operator Group A	\$41.68		\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$57.93	\$78.77
Operator Group B	\$41.58		\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$57.83	\$78.62
Operator Group C	\$40.54		\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$56.79	\$77.06
Operator Group D	\$39.32		\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$55.57	\$75.23
Operator Group E	\$34.03		\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$50.28	\$67.29
Master Mechanic	\$41.93		\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$58.18	\$79.14
Crane 150'-180'	\$42.18		\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$58.43	\$79.52
Crane 180'-249"	\$42.68		\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$58.93	\$80.27
Crane 250' and over	\$42.93		\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$59.18	\$80.64
Apprentice	Percent											
1st Year	50.00	\$20.84	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$37.09	\$47.51
2nd Year	60.00	\$25.01	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$41.26	\$53.76
3rd Year	70.00	\$29.18	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$45.43	\$60.01
4th Year	80.00	\$33.34	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$49.59	\$66.27
Field Mechanic Trainee												
1st Year	50.00	\$20.84	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$37.09	\$47.51
2nd Year	60.00	\$25.01	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$41.26	\$53.76

3rd Year	70.00	\$29.18	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$45.43	\$60.01
4th Year	80.00	\$33.34	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$49.59	\$66.27

Special Calculation Note : Other: Education & Safety Fund is \$0.09 per hour. *Misc is National Training Fund

Ratio :

Jurisdiction (* denotes special jurisdictional note) :

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 65 will not be subject to the apprenticeship ratios in this collective bargaining agreement

SUMMIT, PORTAGE

Special Jurisdictional Note :

Details :

**Apprentices will receive a 10% increase on top of the percentages listed above provided they are operating mobile equipment. Mechanic Trainees will receive 10% if required to have a CDL.

Group A- Barrier Moving Machines; Boiler Operators or Compressor Operators, when compressor or boiler is mounted on crane (Piggyback Operation); Boom Trucks (all types); Cableways Cherry Pickers; Combination - Concrete Mixers & Towers; All Concrete Pumps with Booms; Cranes (all types); Compact Cranes, track or rubber over 4,000 pounds 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; Forklift (rough terrain with winch/hoist); Gradalls; Helicopter Operators, hoisting building materials; Helicopter Winch Operators, Hoisting building materials; Hoes (All types); Hoists (with two or more drums in use); Horizontal Directional Drill; Hydraulic Gantry (lift system); Laser Finishing Machines; Laser Screed and like equipment; Lift Slab or Panel Jack Operators; Locomotives (all types); Maintenance Operator/Technician(Mechanic Operator/Technician and/or Welder); Mixers, paving (multiple drum); Mobile Concrete Pumps, with booms; Panelboards, (all types on site); Pile Drivers; Power Shovels; Prentice Loader; Rail Tamper (with automatic lifting and aligning device); Rotary Drills (all), used on caissons for foundations and sub-structure; Side Booms; Slip Form Pavers; Straddle Carriers (Building Construction on site); Trench Machines (over 24" wide); Tug Boats.

Group B - Articulating/end dumps (minus \$4.00/hour from Group B rate); Asphalt Pavers; Bobcat-type and/or skid steer loader with hoe attachment greater than 7000 lbs.; Bulldozers; CMI type Equipment; Concrete Saw, Vermeer-type; Endloaders; Hydro Milling Machine; Kolman-type Loaders (Dirt Loading); Lead Greasemen; Mucking Machines; Pettibone-Rail Equipment; Power Graders; Power Scoops; Power Scrapers; Push Cats;, Rotomills (all), grinders

and planers of all types.

Group C - A-Frames; Air Compressors, Pressurizing Shafts or Tunnels; All Asphalt Rollers; Bobcat-type and/or Skid Steer Loader with or without attachments; Boilers (15 lbs. pressure and over); All Concrete Pumps (without booms with 5 inch system); Fork Lifts (except masonry); Highway Drills - all types (with integral power); Hoists (with one drum); House Elevators (except those automatic call button controlled), Buck Hoists, Transport Platforms, Construction Elevators; Hydro Vac/Excavator (when a second person is needed, the rate of pay will be "Class E"); Man Lifts; Material hoist/elevators; Mud Jacks; Pressure Grouting; Pump Operators (installing or operating Well Points or other types of Dewatering Systems); Pumps (4 inches and over discharge); Railroad Tie (Inserter/Remover); Rotovator (Lime-Soil Stabilizer); Submersible Pumps (4" and over discharge); Switch & Tie Tampers (without lifting and aligning device); Trench Machines (24" and under); Utility Operators.

Group D - Backfillers and Tampers; Ballast Re-locator; Batch Plant Operators; Bar and Joint Installing Machines; Bull Floats; Burlap and Curing Machines; Clefplanes; Compressors, on building construction; Concrete Mixers, more than one bag capacity; Concrete Mixers, one bag capacity (side loaders); All Concrete Pumps (without boom with 4" or smaller system); Concrete Spreader; Conveyors, used for handling building materials; Crushers; Deckhands; Drum Fireman (in asphalt plants); Farm type tractors pulling attachments; Finishing Machines; Form Trenchers; Generators; Guniting Machines; Hydro-seeders; Pavement Breakers (hydraulic or cable); Post Drivers; Post Hole Diggers; Pressure Pumps (over 1/2") discharge); Road Widening Trenchers; Rollers (except asphalt); Self-propelled sub-graders; Shotcrete Machines; Tire Repairmen; Tractors, pulling sheepsfoot post roller or grader; VAC/ALLS; Vibratory Compactors, with integral power; Welders.

Group E – Allen Screed Paver (concrete); Boilers (less than 15 lbs. pressure); Cranes-Compact, track or rubber (under 4,000 pounds capacity); Directional Drill "Locator"; Fueling and greasing +\$3.00; Inboard/outboard Motor Boat Launches; Light Plant Operators; Masonry Fork Lifts; Oilers/Helpers; Power Driven Heaters (oil fired); Power Scrubbers; Power Sweepers; Pumps (under 4 inch discharge); Signaller, Submersible Pumps (under 4" discharge).

Master Mechanics - Master Mechanic

Cranes 150' – 180' - Boom & Jib 150 - 180 feet

Cranes 180' – 249' - Boom & Jib 180 - 249 feet

Cranes 250' and over - Boom & Jib 250-feet or over

Prevailing Wage Rate

Skilled Crafts

Name of Union: Operating Engineers - HevHwy Zone I

Change # : LCN01-2022sksLoc18hevhwyl

Craft : Operating Engineer Effective Date : 05/25/2022 Last Posted : 05/25/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Operator Class A	\$41.68		\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$57.93	\$78.77
Operator Class B	\$41.58		\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$57.83	\$78.62
Operator Class C	\$40.54		\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$56.79	\$77.06
Operator Class D	\$39.32		\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$55.57	\$75.23
Operator Class E	\$34.03		\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$50.28	\$67.29
Master Mechanic	\$41.93		\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$58.18	\$79.14
Apprentice	Percent											
1st Year	50.00	\$20.84	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$37.09	\$47.51
2nd Year	60.00	\$25.01	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$41.26	\$53.76
3rd Year	70.00	\$29.18	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$45.43	\$60.01
4th Year	80.00	\$33.34	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$49.59	\$66.27
Field Mech Trainee												
1st year	50.00	\$20.84	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$37.09	\$47.51
2nd year	60.00	\$25.01	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$41.26	\$53.76
3rd year	70.00	\$29.18	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$45.43	\$60.01
4th year	80.00	\$33.34	\$9.01	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.05	\$49.59	\$66.27

Special Calculation Note : Other: Education & Safety Fund is \$0.09 per hour. *Misc is National Training

Ratio :

Jurisdiction (* denotes special jurisdictional note) :

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 69 will not be subject to the apprenticeship ratios in this collective bargaining agreement ASHTABULA, CUYAHOGA, ERIE, GEauga, LAKE, LORAIN, MEDINA, PORTAGE, SUMMIT

Special Jurisdictional Note :

Details :

**Apprentices will receive a 10% increase on top of the percentages listed above provided they are operating mobile equipment. Mechanic Trainees will receive 10% if required to have a CDL.

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, Groovers (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); Power 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

Prevailing Wage Rate

Skilled Crafts

Name of Union: Truck Driver Bldg & Hwy Class 1
Locals 20,40,92,92b,100,175,284,438,377,637,908,957

Change # : LCRO1-2021fbBldgHwy

Craft : Truck Driver **Effective Date :** 05/21/2021 **Last Posted :** 05/21/2021

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECE T (*)	MIS C (*)		
Classification												
Truck Driver CLASS 1 4 wheel service, dump, and batch trucks, Oil Distributor - Asphalt Distributor-Tandems	\$29.24		\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.44	\$60.06
Apprentice	Percent											
First 6 months	80.00	\$23.39	\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$39.59	\$51.29
7-12 months	85.00	\$24.85	\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.05	\$53.48
13-18 months	90.00	\$26.32	\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$42.52	\$55.67
19-24 months	95.00	\$27.78	\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$43.98	\$57.87
25-30 months	100.00	\$29.24	\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.44	\$60.06

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

Jurisdiction (* denotes special jurisdictional note) :

3 Journeymen to 1 Apprentice

ADAMS, ALLEN, ASHLAND, ASHTABULA,
ATHENS, AUGLAIZE, BELMONT, BROWN,
BUTLER, CARROLL, CHAMPAIGN,
CLARK, CLERMONT, CLINTON,
COLUMBIANA, COSHOCTON,
CRAWFORD, DARKE, DEFIANCE,
DELAWARE, ERIE, FAIRFIELD, FAYETTE,
FRANKLIN, FULTON, GALLIA, GREENE,
GUERNSEY, HAMILTON, HANCOCK,
HARDIN, HARRISON, HENRY, HIGHLAND,
HOCKING, HOLMES, HURON, JACKSON,
JEFFERSON, KNOX, 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 :

** Asphalt - Oil spray bar man when operating from cab shall receive \$0.20 cents per hour above their Basic Hourly Rate.

Name of Union: Truck Driver Bldg & HevHwy Class 2
Locals 20,40,92,92b,100,175,284,438,377,637,908,957

Craft : Truck Driver Effective Date : 06/08/2022 Last Posted : 06/08/2022

[illegible]

25-30 months	100.00	\$30.81	\$7.50	\$8.80	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$47.31	\$62.72
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Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, 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 :

** Asphalt - Oil spray bar man when operating from cab shall receive \$0.20 cents per hour above their Basic Hourly Rate.

TECHNICAL SPECIFICATIONS

For

DIX PARK PICNIC AREA

SR 44, Portage County, Ohio

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SECTION 00 01 10 – SUMMARY OR WORK

PART 1 - GENERAL

DESCRIPTION

- A. The proposed work is defined in this project specifications, construction drawings and other documents identified herein and is the official contract documents. All work shall be in accordance with these documents.
- B. The proposed Dix Park Pavilion project is located at the Dix Park in Ravenna Township, Ohio. The site of the proposed work is an existing gravel maintenance drive and park area.
- C. The proposed work for this project includes installing a new aggregate service yard/parking, new path to a new picnic pad and a picnic table area. The project includes concrete piers, aggregate pavement, concrete and underdrains.
- D. In order to facilitate construction of the new aggregate pavement/walks proposed tree clearing, concrete piers, grubbing, earthwork and grading is anticipated for the project area. This project provides ADA access to the existing trail and new picnic pad.

The project also includes clearing trees/brush along near the pavilion area.

Access to the site will be from SR 44, the contractor will be responsible for not tracking debris, dust and/or mud onto the nearby streets. Contractor shall use flaggers for vehicles entering/leaving site due to site distance at driveway.

- E. This section includes descriptions and references to drawings and specifications intended to summarize the work of each separate prime contract. The descriptions and references included herein shall not limit the scope of the contract as may be further developed in the drawings and specifications as a whole. Each prime contractor shall review every drawing and every specification to fully ascertain the scope of the work contained herein, including drawings and specifications contained in other bid packages of the project that were made available to them. The assignment of work as defined in this section will prevail over work assignments that may be otherwise shown in the drawings and other sections of the specifications.
- F. In case of a single prime contractor performing the entire work, the assignment of work is generally the responsibility of the prime contractor, except as specifically required for specialty subcontractors and for meeting DBE requirements. The Owner reserves the right to review prime contractor's assignment of work and request substantiation of expertise in case of such specialties.

- G. The Contractor shall schedule their Work between the weekday hours permitted by Ravenna Township as the project is located within a residential area with houses adjacent to the property. If work is required on weekends or outside of the hours mentioned above the contractor shall notify the owner and also make a request with the Village for the hours outside of those mentioned above.
- H. The Contractor will provide all testing of materials and subgrade as called for in the project specifications and certifying test results meet the projects specifications. Contractor shall work with owners testing agency to provide all info as required.
- I. The contractor is responsible to obtain all required permits, to perform work, bonding, and insurance for the project and shall include these costs under Bid Items – Mobilization and permits
- J. This contractor shall be responsible for furnishing all supervision, labor, materials, tools, equipment, freight, trade permits, insurance, taxes and tariffs (as applicable), testing (as specified), inspection and permit fees, construction layout, and other services as necessary to completely furnish and install the new parking lot.

1.2 DEFINITION

- A. Whenever “Contractor” is reference in these specifications, it is meant to refer to the “Prime contractor”.

1.3 CONTRACT DOCUMENTS

- A. The Contract Documents include the following:

1. GENERAL REQUIREMENTS – Division 01.

2. Technical Specifications – Sections 02, 31, 32 and 33

3. Construction Drawings – Dated September 9, 2022 including the following.

- a. C-1.00 Cover
- b. C-1.01 Site General Notes
- c. C-1.02 Existing Conditions and Demolition Plan
- d. C-1.03 Site Layout
- e. C-1.04 Grading Plan
- f. C-1.05 SWPP Plan
- g. C-1.06 Detail Sheet

- h. C-1.07 Detail Sheet
- i. C-1.08 Detail Sheet
- j. C-1.09 Detail Sheet
- k. C-1.10 Detail Sheet
- l. S0.01 Structural Notes & Special Inspections
- m. S1.01 Plan and Details

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

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SECTION 01 04 00 – COORDINATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This sections covers all items that are to be coordinated by the prime contractor as part of their responsibilities.

1.2 DEFINITION

- A. Whenever “Contractor” is reference in these specifications, it is meant to refer to the “Prime or General contractor”.

1.3 RESPONSIBILITIES

- A. Coordinate scheduling, submittals, and requirements of specification sections to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Coordination amongst contractors
 - 1. General contractor/prime contractor is responsible for coordination of work between sub-contractors.
 - 2. General contractor/prime contractor is responsible for scheduling of work between sub-contractors.
 - 3. General contractor/prime contractors is responsible for coordinating all project-related meetings required by the contract documents, permits, site visits, etc.

1.4 CONSTRUCTION MOBILIZATION

- A. Cooperate with the Owner for location of field offices, employee parking, access, traffic, and other facilities.
- B. Comply with instructions of Owner for use of temporary utilities and construction facilities.
- C. Coordinate survey layout work with instructions from the Engineer.

1.4 PRE-CONSTRUCTION MEETING

- A. Prior to the start of a major construction phase or when specified in individual sections, convene pre-installation meeting or conference at project site before starting work of

that portion.

B. The following are required at the pre-construction meeting:

1. The prime contractor undertaking the work shall outline the specific activities and procedures to be carried out, including a discussion of the proper conditions required to conduct the work.
2. Other sub-contractors whose work interfaces the product being installed shall be in attendance. Prime contractors whose work proceeds and follows the installation under discussion shall be present.
3. Notify the Owner and Engineer of meeting schedule not less than one week before pre-construction meeting to allow arrangement for attendance by the Owner and engineer, as necessary.

1.5 COORDINATION OF CONSTRUCTION DOCUMENTS

- A. The general contractor/prime contractor shall be responsible to distribute construction documents to all sub-contractors having interdependent responsibilities for installing any of the project work scope items.
- B. The general contractor/prime contractor shall be responsible to distribute construction documents to all manufacturers and suppliers.
- C. Each sub-contractor shall provide complete information including marked up set of record installation drawings of all installed items to the general contractor/prime contractor.
- D. The general contractor/prime contractor shall provide a final marked up set of As Built/Record Drawings to the owner and engineer including all of their subs prior to the issuance of final substantial completion document.

1.6 COORDINATION AUTHORITY

- A. General Contractors/Prime Contractors and their sub-contractors are responsible to identify areas and report to the engineer where:
 1. Areas where potential conflicts may occur.
 2. Areas on plans where discrepancies occur from field conditions.
 3. Field coordination drawings are required.
- B. If any of the above items occur the Engineer will review the drawings to determine if design modifications are required.
- D. Failure to exercise coordination responsibilities mentioned above waives the general contractor/prime contractor's claims for an increase in the contract sum if design

modifications are required to resolve conflicts that might have been avoided by complying with requirements of this section.

1.7 COORDINATION OF CONTRACT CLOSEOUT

- A. Notify the Engineer when work is considered ready for Substantial Completion. Comply with Engineer's instructions for completion of portions of work.
- B. Coordinate completion and clean up of work of the separate specification sections in preparation for Substantial Completion.
- C. After Owner occupancy, coordinate access to project for correction of defective work to minimize disruption of Owner's activities.
- D. Assemble and coordinate closeout submittals specified in Section 01700.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

PART 4 – METHOD OF MESUREMENT AND PAYMENT

NOT USED

END OF SECTION

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SECTION 01 20 00 – PROJECT MEEETINGS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This sections covers all items that are to be included and performed at construction progress meetings by the general contractor/prime contractor.
- B. The purpose of these meetings are to review progress during construction, discuss upcoming work items and to provide discuss issues that arise as a result of the construction. The owner and Engineer will conduct project progress meetings at regular intervals throughout the construction period at an interval determined by the owner.
- C. In general, for bidding purposes project progress meetings will be held weekly at the job site in accordance with a mutually acceptable schedule.
- D. Additional project review and coordination meetings may be called by the Owner and Engineer to deal with issues and problems arising during the project execution. Agenda and attendance of these meetings will be as determined by the Engineer.
- E. The Contractor's relations with his subcontractors and materials' suppliers, and discussions relative thereto, are his responsibility and are not part of project meeting's content.

1.2 MEETINGS

- A. Pre-Construction Meeting
- B. Progress Meetings
- C. Final Punch List Meeting

1.3 CONTRACTOR REPRESENTATION

- A. Persons attending project meetings for the general contractor/prime contractor shall be the one who has all required authority to commit the Contractor to decisions as agreed upon in the project meetings. The contractor shall provide at the pre-construction meeting a list of those who have the responsibility to make final decisions on behalf of the project for their team.
- B. To the maximum extent practicable, assign the same person or persons to represent the Contractor at project meetings throughout the construction period.

1.4 AGENDA ITEMS

- A. The general contractor / prime contractor shall submit to the Owner and Engineer, at least 24 hours in advance of the regularly scheduled project progress meeting, a proposed agenda and a plan of their activities for the next two-week period for distribution to meeting participants.

1.5 RECORD OF MEETINGS

- A. The Engineer will compile the minutes of the meeting and distribute it to all attendees and any additional staff as requested. The general contractor/prime contractor is responsible to distribute all meetings to the appropriate members of their team.
- B. The minutes are an outline of items discussed, however it is the contractors responsibility to direct the work discussed at the meetings to his employees and subcontractors.
- C. Each attendee at the meetings will have up to five business days from the meetings to request corrections or additions to the minutes. Unless such corrections or additions are received within 5 days of issue, the minutes will be considered the final record of the meeting. If revisions are received and requested a new meeting minutes will be distributed.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

PART 4 – METHOD OF MESUREMENT AND PAYMENT

NOT USED

END OF SECTION

SECTION 01 26 00 –MODIFICATION PROCEDURES

PART 1 – GENERAL

1.1 WORK INCLUDED

A. This section includes the following:

1. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.2 CHANGES IN THE PROJECT WORK SCOPE

1. The contractor and/or owner shall request in writing the owner and requested change in the contract scope.
2. The contractor shall maintain a log of all change order requests and running total of work performed.
3. If agreed by the owner and engineer, the owner will request a proposal for the change in work. The proposal shall include the following:
 - a. Detailed description of the work, and products added/or non-performed.
 - b. Detailed breakdown of the quantities
 - c. Construction cost change including materials, labor, taxes, delivery etc.
 - d. Updated schedule for revised work.
 - e. Request if required for extension to time.

1.3 CHANGE ORDER PROCEDURES

- A. If approved by the Owner, the Engineer and /or Owner will issue a written approval of the change order including adjustment in overall contract amount.

1.4 CONSTRUCTION DIRECTIVE

- A. The engineer and/or owner may issue a work directive narrative in a letter to the contractor instructing of changes or clarification of work as a result of a contractor Request for Information. This represents a directive for work to be performed and does not indicate a change to the contract amount.
1. Construction Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

PART 2 – PRODUCTS

2.1 NA

PART 3 – EXECUTION

3.1 NA

END OF SECTION

SECTION 01 29 01 – MEASUREMENTS AND PAYMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Payment for the various Items of the Bid, as further specified herein, shall include compensation to be received by the Contractor for providing tools, equipment, supplies, and manufactured articles, and for labor, operations, and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the Work in accordance with the requirements of the Contract Documents. Work also includes costs of all permits, insurance, and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the State of Ohio and the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA). No separate payment will be made for items that are not specifically set forth in the Bid, and costs therefore shall be included in the prices named in the Bid for the various Items of work.
- B. Payment for each respective item also includes all costs for printing of all construction sets of plans and specifications.
- C. See Portage Parks front end specification for Article 17 Estimated Quantities for the basis of quantities in the bid.
- D. The cost for the preparation and submittal of all shop drawings shall be included in each bid item.

1.02 REFERENCES

- A. All bid items shown below are based on the Ohio Department of Transportation Construction and Materials Specifications 2019 edition and additional technical specifications enclosed herein. Bid items shall include all items as called for under each respective ODOT bid item in the CMS manual and also as called for in the bid set plans and specifications.

1.03 BID ITEMS

- A. Bid Item: Clearing and Grubbing

- 1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:

- (1) Removal of brush, grass, shrubs, trees, backfilling holes, removing stumps, etc required to install the multi-purpose path.
- (2) All items called for in ODOT Item 201 Clearing and Grubbing and as called for in Technical Specification Section 31 10 00 Clearing and Grubbing.

2. Measurement and Payment

- a. The owner will pay for all work described, including backfilling holes, scalping, and removing all trees and stumps, at the **Lump Sum** price bid. No separate payment will be made for each tree removal.

B. Bid Item: Excavation

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:
 - (1) Excavate all areas of the project area to the line and grades show on the plans.
 - (2) Excavation limits shall include to the bottom of all pavement subgrade and to a point 6-inches below the final surface for all grass areas.
 - (3) Excavation shall include all benching into the existing hillside per the plans and ODOT Item 203 specifications.
 - (4) All material and work shall be performed in accordance with ODOT CMS Item 203 Embankment, the Project's Geotechnical Report and technical specifications sections 31 20 00 Earth Moving, and section 31 22 00 Grading.
 - (5) Stockpile all excess excavated materials on site (separate from topsoil) at a location to be determined by the owner for use in the future. No hauling of materials will be permitted unless approved by owner.
 - (6) Topsoil striping will be paid for under a separate item.
 - (7) Permanent seeding of the topsoil stockpile area to be included in this bid item along with silt fence around stockpile.
 - (8) Contractor is responsible for final excavation quantities and adjust bid price to reflect their numbers. The quantity shown on the bid tab is an estimate used for bidding purposes. If the deviation between the contractor and bid tab quantity differs by more than 10% the contractor shall request and RFI during bidding for this change and providing

supporting documentation as their calculation for consideration. No additional payment will be provided if adjustment in bid item is not provided as part of an Addendum.

2. Measurement and Payment

- a. The owner will pay for all work described, including excavating, stockpiling, permanent seeding of stockpile and silt fence around stockpile at the contract price per **Cubic Yard** price bid.

C. Bid Item: Embankment

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:
 - (1) Embankment/fill all areas of the project area to the line and grades show on the plans.
 - (2) Excavation shall include all benching into the existing hillside per the plans and ODOT Item 203 specifications and ODOT GB2 Geotechnical Bulletin.
 - (3) All material and work shall be performed in accordance with ODOT CMS Item 203 Embankment, the Project's Geotechnical Report and technical specifications sections 31 20 00 Earth Moving, and section 31 22 00 Grading.
 - (4) Topsoil placement will be paid for under a separate item. Fill limits shall include all volume up to 6-inches from the surface
 - (5) Permanent seeding of the soil stockpile area to be included in this bid item along with silt fence around stockpile.
 - (6) Contractor is responsible for final embankment quantities and adjust bid price to reflect their numbers. The quantity shown on the bid tab is an estimate used for bidding purposes. If the deviation between the contractor and bid tab quantity differs by more than 10% the contractor shall request and RFI during bidding for this change and providing supporting documentation as their calculation for consideration. No additional payment will be provided if adjustment in bid item is not provided as part of an Addendum.

2. Measurement and Payment

- a. The owner will pay for all work described, including site embankment/filling, at the contract price per **Cubic Yard** price bid.

D. Bid Item: Topsoil Stripped and Hauled Away

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:
 - (1) Excavate and remove all topsoil, for bidding purposes assume an average 6-inches of topsoil from the grading limits.
 - (2) All material and work shall be performed in accordance with ODOT CMS Item 203 Excavation, the Project's Geotechnical Report and technical specifications sections 31 20 00 Earth Moving, and section 31 22 00 Grading.
 - (3) Excavation will be paid for under a separate item.
 - (4) Contractor is responsible for final topsoil quantities and adjust bid price to reflect their numbers. The quantity shown on the bid tab is an estimate used for bidding purposes. If the deviation between the contractor and bid tab quantity differs by more than 10% the contractor shall request and RFI during bidding for this change and providing supporting documentation as their calculation for consideration. No additional payment will be provided if adjustment in bid item is not provided as part of an Addendum.

2. Measurement and Payment

- a. The owner will pay for all work described, including excavating, and hauling away at the contract unit price per Cubic Yard price bid.

E. Bid Item: Subgrade Compaction and Proof Rolling

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:
 - (1) Compacting and poof roiling of the pavement subgrade.
 - (2) All material and work shall be performed in accordance with ODOT CMS Item 204 Subgrade Compaction and Proof Rolling, the Project's Geotechnical Report and technical specifications and section 31 20 00 Earth Moving.

2. Measurement and Payment

- a. The owner will pay for all work described, including subgrade compaction and proof rolling at the contract price per Square Yard price bid.

F. Bid Item: Item 304 Aggregate Base - Pavilion Pad / New Gravel Path

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:
 - (1) Providing and installing ODOT Item 304 aggregate base complete in place.
 - (2) All material and work shall be performed in accordance with ODOT CMS Item 304 Aggregate Base, installed and accepted by the owner.

2. Measurement and Payment

- a. The owner will pay for all work described, including compaction at the contract price per Cubic Yard price bid.

G. Bid Item: #10 Chips and Dust

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:
 - (1) Providing and installing #10 Chips and Dust Stone aggregate base complete in place.
 - (2) All material and work shall be performed in accordance with ODOT CMS Item Special #10 Chips and Dust Stone installed and accepted by the owner.

2. Measurement and Payment

- a. The owner will pay for all work described, including compaction at the contract price per Cubic Yard price bid.

H. Bid Item: Concrete Piers

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:

- (1) Providing and installing Concrete Piers as shown on the structural plan including drilling/boring hole, reinforcement, concrete, and expansion joint material, installed and accepted by the owner.
- (2) Coordination with pavilion manufacturer for anchor bolts.

2. Measurement and Payment

- a. The owner will pay for all work described, including material and labor for the installation of Item Special Concrete Piers at the contract price per **Each** price bid.

I. Bid Item: 6" Non-Reinforced Concrete Pavement Picnic Pad.

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:

- (1) Providing and installing Item 452 Non-Reinforced Concrete Pavement including reinforcement. All material and work shall be performed in accordance with ODOT CMS Item 452, installed and accepted by the owner.

2. Measurement and Payment

- a. The owner will pay for all work described, including material and labor for the installation of Item 452 Non-Reinforced Concrete Pavement at the contract price per **Square Foot** price bid.

J. Bid Item: ODOT 653 Topsoil Furnished and Placed

1. Scope of Work:

- (1) Costs shall include all labor, material, and equipment associated with the following items: Screening the stockpiled topsoil and conditioning for reuse or importing topsoil
- (2) All material and work shall be performed in accordance with ODOT CMS Item 653 Topsoil Furnished and Placed, the Project's Geotechnical Report and technical specifications section 31 22 00 Grading.

2. Placing topsoil on all disturbed areas that do not have pavement to a depth of 6-inches. Measurement and Payment

- a. The owner will pay for all work described, including screening the stockpiled topsoil and conditioning for redistribution of topsoil at the contract price per Cubic Yard price bid.

K. Bid Item: Seeding and Mulching

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:
 - (1) Prepare the topsoil bed for seeding.
 - (2) The installation of hydroseed or standard seeding and mulching practices.
 - (3) Providing a one-year growing season warrantee on the grass areas and reseeding all grass areas that did not grow to the satisfaction of the owner from 1-year after the Substantial Completion date.
 - (4) All material and work shall be performed in accordance with ODOT CMS Item 659 Seeding and Mulching, the Project's Geotechnical Report and technical specifications section 32 92 00 Turfs and Lawns.
 - (5) Placing topsoil on all disturbed areas that do not have aggregate or pavement to a depth of 4-inches.
 - (6) Providing shop drawing for seeding and mulching materials.

2. Measurement and Payment

- a. The owner will pay for all work described, including material and labor for the installation of Seeding and Mulching at the contract price per **Square Yard** price bid.

L. Bid Item: Mobilization and Permits

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:
 - (1) The delivery of all equipment and temporary facilities to the site.
 - (2) Providing all temporary facilities as called for in technical specification Section 01 50 00 Temporary Facilities

- (3) Providing all City, County and State permit fees as required.
- (4) Providing all construction closeout services as shown in Section 01 70 00 Project Closeout.
- (5) All project meetings per technical specification Section 01 20 00 Project Meetings.
- (6) All project coordination with all sub-contractors and the owner.

2. Measurement and Payment

- a. The owner will pay for all work described, including material and labor for the Mobilization and Permits at the contract price per **Lump Sum** price bid.

M. Bid Item: Construction Staking

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:
 - (1) Providing construction staking for the overall project area per the technical specifications Section 02 21 20 Construction Staking.

2. Measurement and Payment

- a. The owner will pay for all work described, including material and labor for the Construction Staking at the contract price per **Lump Sum** price bid.

N. Bid Item: ODOT 832 Temporary Sediment and Erosion Control

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:
 - (1) Providing the Owner a marked up plan for the erosion and sediment control practices to be used on site.
 - (2) The installation of silt fence, silt sock and temporary sediment basin.
 - (3) The installation of a stabilized construction entrance, employee parking area, cement washout facility, construction debris dumpster and fuel containment dike.
 - (4) The removal of all sediment at the end of the construction project from the temporary sediment pond and disposed of.

- (5) Temporary and permanent seeding.
- (6) Inlet protection at all inlets.
- (7) Maintaining and inspecting all erosion control practices during construction and the removal after full stabilization of the site.
- (8) If directed by the owner, engineer and or the City replacing a damaged erosion control device or providing maintenance.
- (9) All material and work shall be performed in accordance with ODOT Supplemental CMS Item 832, project details and Section 32 17 23 of the technical specifications.

2. Measurement and Payment

- a. The owner will pay for all work described, including material and labor for the installation of Temporary Sediment and Erosion Control at the contract price per **LUMP SUM** price bid.

O. Bid Item: 6" Shallow Pipe Underdrain / Edge Drain (Perforated)

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:
 - (1) All trenching and aggregate backfill per the project details.
 - (2) The installation of ASTM No. 57 aggregate backfill.
 - (3) Non Woven Geotextile wrapped around the aggregate base section.
 - (4) The installation of a 6" perforated underdrain pipe including fittings where shown on plans.
 - (5) All material and work shall be performed in accordance with ODOT CMS Item 605 Underdrains and Section 31 23 23 Trenching and Backfill, Section 31 32 19 Geotextile Fabric and Section 33 41 00 Subdrainage Piping.

2. Measurement and Payment

- a. The owner will pay for all work described, including material and labor for the installation of 6" Shallow Pipe Underdrain / Edge Drain (Perforated) at the contract price per **Lineal Foot** price bid.

P. Bid Item: 2" Limestone #411 Screenings - (Alternate)

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:
 - (1) Providing and installing Limestone #411 Screenings complete in place.
 - (2) All material and work shall be performed in accordance with ODOT CMS Item Special Limestone #411 Screenings installed and accepted by the owner.

2. Measurement and Payment

- a. The owner will pay for all work described, including compaction at the contract price per Cubic Yard price bid.

Q. Bid Item No. 08: ODOT 408 Prime Coat – (Alternate)

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:
 - (1) Providing and installing ODOT Item 408 Prime Coat complete in place.
 - (2) All material and work shall be performed in accordance with ODOT CMS Item 408 Prime, installed and accepted by the owner.

2. Measurement and Payment

- a. The owner will pay for all work described at the contract price per gallon price bid.

R. Bid Item: Chip and Seal (Alternate)

1. Scope of Work:

- a. Costs shall include all labor, material, and equipment associated with the following items:

- (1) Providing and installing Item Special Chip and Seal. All material and work shall be performed in accordance with ODOT CMS Item 441 Asphalt Concrete, installed and accepted by the owner.

2. Measurement and Payment

- a. The owner will pay for all work described, including material and labor for the installation of Chip and Seal at the contract price per **Square Yard** price bid.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

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SECTION 01 30 00 – SUBMITTALS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies procedures for submittals by each general / prime contractor required for materials and products to be used as part of this project. Specific submittals described in the various technical specification sections shall be submitted in accordance with this section. The submittals addressed in this section are:

- 1. Project Schedule
- 2. Shop Drawings and Product Data
- 3. Samples

1.2 PROJECT SCHEDULE

- A. Submit a construction schedule and a list of shop drawings within 10 calendar days after Notice to proceed for approval by the Owner and Engineer.
- B. The construction schedule should show all project milestones, key dates and critical path items.
- C. Revise the schedule after each progress review meeting or activity, where revisions have been recognized or made. Issue the updated schedule to the Owner and Engineer so that it can be included with the minutes of the meeting.
- D. With the submittal of each pay application provide an updated project schedule including percent of work completed per task at each submitted invoice.

1.3 SHOP DRAWINGS AND PRODUCT DATA

- A. The general contractor / prime contractor is responsible to compile all product shop drawings as called for in the technical specifications including, but not limited to the following items:
 - 1. Storm sewer and underdrain piping
 - 2. Catch Basin structures
 - 3. Gradation report of aggregate base 304 material

4. Gradation report of pipe backfill
 5. Gradation report of premium backfill in sewer trenches
 6. Asphalt pavement mix design
 7. Signs and sign posts
 8. Pavement marking materials
 9. Seed and mulch materials
- B. The general contractor / prime contractor is responsible to compile all product shop drawings and submit in a timely manner as to no hinder the projects construction schedule.
- C. The Engineer will respond to submittals within 7 days at the minimum. Extensive, voluminous, or complex submittals may require up to 14 days. Contractor shall make reasonable allowance in his schedule for the need of such extended review times.
- D. All submittals shall be delivered via email and pdf documents. In email title place the following in the subject line: Trail Lake Picnic Area – Shop Drawing Submittal Number – Item. Shop drawings will be returned the same manner.
- E. Each submittal shall include a cover sheet with the following information:
1. Project name
 2. Submittal number (must stay in chronological order, revised submittals shall be 1A, 1B etc. after root submittal number.
 3. Name and address of general contractor / prime contractor
 4. Name of contractor to install material
 5. Date of submittal
 6. Name of supplier/manufacturer including contact info
 7. Number and title of appropriate specification section
 8. Contract drawing sheet number and detail number product references
 9. Any proposed deviation from contract requirements and reasons for deviation
 10. Lead time required and anticipated installation date.
 11. Statement of certification signed by the Contractor that the submittal has been reviewed and verified by the contractor to be in accordance with drawings and

specifications. Any deviations, if applicable shall be noted.

- F. Shop drawing or Product Submittal shall include the following information:
 - 1. ASTM, AWWA, ODOT or other standard that product meets or exceeds.
 - 2. Manufacturer's printed recommendations
 - 3. Compliance with recognized trade association standards
 - 4. Compliance with recognized testing agency standards
 - 5. Application of testing agency labels and seals
- G. Fabrication or installation of work shall not be started until shop or setting drawings have been reviewed and returned to the contractor.
- H. The following are actions that will be returned with shop drawings:
 - 1. "Reviewed, No Exception Taken". The Contractor is authorized to proceed with fabrication, shipping to site and installation in accordance with the submittal.
 - 2. "Reviewed, Exceptions as Noted" by the Engineer. The Contractor is authorized to proceed with fabrication, shipping to site and installation in accordance with the submittal as noted in the Engineer's response.
 - 3. Shop drawings returned with the notation "Submit Specified Item" or "Revise and Resubmit" must be resubmitted with the corrections made. Specific request for revising the submittal in accordance with the comments provided in the Engineer's response will be provided. The subsequent revised submittal by the contractor shall include on the cover sheet a statement indicating the addition and/or revision made.
 - 4. Drawings with "Requires Review of Others" shall be forwarded to the appropriate reviewer.
 - 5. Shop Drawings returned with "For Record Only" are for that purpose only and does not constitute approval of the materials.
- I. Shop drawing review by the Engineer does not relieve the Contractor or any subcontractor of responsibility for full compliance with contract requirements; for correctness of dimensions, clearances and material quantities; for proper design of details; for proper fabrication and construction techniques; for proper coordination with other trades; and for providing all devices required for safe and satisfactory construction and operation.
- J. Where called for shop drawings shall be stamped by a Professional Engineer registered in the State of Ohio when so required by applicable codes and statutes.

- K. All shop drawings with drawings/sketches submitted shall be at a scale that is legible to the reviewer and drawn in Autocad or similar electronic drafting software.

1.4 SAMPLES

- A. When called for on the plans or specifications the contractor shall submit full-size, fully fabricated samples cured and finished as specified and identical in all respects with the material or product proposed. Some examples of products that may be requested if part of the project include decorative paver stone, plantings, stamped or colored concrete etc.
- B. Samples shall be delivered to the owner's office and include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern. The following shall be included with each sample:
1. Generic description of the sample
 2. Sample source
 3. Product name or name of manufacturer
 4. Color and texture name
 5. Compliance with recognized standards
 6. Availability and delivery time

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

PART 4 – METHOD OF MESUREMENT AND PAYMENT

NOT USED

END OF SECTION

SECTION 01 40 00 –TESTING AND INSPECTION

PART 1 – GENERAL

1.1 WORK INCLUDED

A. This section includes the following:

1. Inspection and Testing Laboratory Services will be utilized on this contract and provided by the Portage Park District. The Contractor has agreed to a period of time for contract execution. Within that time period all construction activities must be monitored by Portage Park District and or Engineer of Record. Portage Parks District requires an inspector to document project progress, obtain inspection and test results from the Contractor's/Supplier's Laboratory or other inspection firms, confirm quantities, check compliance with Contract requirements, represent the project to the owner, recommend/review proposed contract revisions, contact Portage Parks officials for issue resolution, and other items as directed by the Engineer.
2. The contractor is responsible for notifying the inspection service of any change in the routine construction schedule.
3. The inspection performed does not relieve the Contractor from their duty to perform the contract as specified. Defective, nonfunctional or incomplete work shall be corrected by the Contractor at their own expense whether inspected by Portage Parks District or not.
4. Testing Laboratory Services, shall be provided by the Portage Park District, and shall be used where testing is specified under each section of the Technical Specifications.

1.2 QUALIFICATIONS

- A. The Independent Third Party Inspection and Testing Laboratory Services shall comply with requirements of the American Council of Independent Laboratories' "Recommended Requirements for Independent Laboratory Qualifications", or ASTM #699, as appropriate.
- B. Testing equipment shall have been calibrated not more than 12 months prior to use on this contract by devices of accuracy traceable to either National Bureau of Standards or accepted values of material physical constants. Certificates of calibration, made by an accredited calibration agency, shall be submitted, before the start of the testing process.

1.3 INSPECTION SERVICE

- A. The Independent Third Party Inspection and Testing Laboratory shall cooperate with

the Contractor and owners Engineer and follow directions as instructed by them.

- B. Specified inspections, sampling and testing of materials and methods of construction shall be performed in accordance with the applicable ASTM and ODOT standards and as specified herein.
- C. Prior to performing tests the Inspection and Testing Laboratory shall contact the owner and engineer of record 48 hours prior to the test so that they can determine if they will be present for the test.
- D. The Inspection and Testing Laboratory shall provide a report of the results of their inspections to the owner and engineer that includes the following items:
 - 1. Type/name of test
 - 2. Date of test
 - 3. Date of report
 - 4. Weather and temperature at time of test
 - 5. Name of Inspector/Testing Agent
 - 6. Table comparing result data versus plan, specification or ODOT requirements and indication as to whether test passed/meet or failed plans/specifications requirements.
 - 7. Map with location of test or sample taken, project plans can be used.
 - 8. Name of Inspection and Testing Laboratory representative and signature.
 - 9. Certification statement that tests were performed according to industry standards and requirements set forth by ASTM, ODOT and/or manufacturer.
- E. The Inspection and Testing Laboratory will approve and/or accept work on behalf of the owner or engineer. In addition, they shall not decipher or revise plans and or specifications without consultation with the engineer. Any items that need clarity shall be brought to the attention of the owner and their engineer.
- F. The contractor shall provide 48 hour advance notice of all tests to the Independent Third Party Inspection and Testing Laboratory so that a representative can be onsite.
- G. The contractor shall provide all samples of items to be tested to the testing agency including concrete, asphalt, soils etc.
- H. The contractor shall provide safe access to the site for all Inspection and Testing Laboratory representatives.
- I. The Contractor shall cooperate completely with the inspection service and treat them as fully empowered and authorized representatives of the Owner.

PART 2 – PRODUCTS

2.1 NA

PART 3 – EXECUTION

3.1 NA

END OF SECTION

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SECTION 01 50 00 – TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies requirements for providing temporary services and facilities, including the following:
1. Sanitary facilities
 3. Drinking Water
 4. Temporary Pavement and Roads
 6. Temporary Parking
 6. Signs
 7. Site Security and Protection
 8. Collection and Disposal of Waste
 9. Worker Safety
 11. Environmental Protection

1.2 RESPONSIBILITY

1. Unless otherwise specified, each prime and subcontractor shall furnish, install, and maintain temporary facilities and controls required for the construction of their work and their own construction personnel. Contractor shall remove such temporary facilities and controls upon completion of their work. All facilities and controls shall comply with Federal, State, and Local codes and safety regulations.
2. Each Contractor shall provide construction aids and equipment required to assure the complete and total safety of his personnel and to facilitate the execution of the work. All such equipment shall meet current OSHA requirements.
3. Each Contractor shall relocate facilities as required to accommodate the progress of construction, storage or work requirements, or to accommodate the requirements of the Owner, and other contractors employed at the site.
4. At the completion of the Contractor's work, or where otherwise directed by the Engineer, the contractor shall completely remove temporary structures, materials,

equipment, and facilities installed by the Contractor. The Contractor shall repair any damage caused by the installation or use of the temporary facilities and shall cleanup all evidence of the temporary facilities after their proper removal.

5. The contractor is responsible to keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities or permit them to interfere with progress. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on the site.
6. The contractor shall remove his temporary service and facility promptly when the need for it or a substantial portion of it has ended, or when it has been replaced by the authorized use of a permanent facility.
7. The contractor shall complete, or if necessary, restore permanent work which may have been delayed because of interference with the temporary service or facility. Repair damaged work, clean exposed surfaces and replace work which cannot be satisfactorily repaired.
8. The contractor is responsible to operate and maintain his temporary services and facilities in good operating condition throughout the time of use and until removal is required. Protect from damage by freezing temperature and other environmental conditions.
9. The contractor shall maintain distinct markers for underground lines. Protect from damage during excavating operations.

1.3 SERVICE UTILITIES

- A. The following temporary utility service may be required by the contractor on site to facilitate their construction:
 1. Temporary power and/or lighting
 2. Temporary water
 3. Temporary telephone or internet service
- B. All temporary utility service shall be installed per the utility company specifications and the contractor is responsible for paying all costs, service fees, obtaining all utility permit, approval, schedule for service, maintaining and disconnecting the service.
- C. The contractor shall provide a schedule for the temporary service to the Owner and Engineer.
- D. At completion of the work and prior to final acceptance by the Engineer, disconnect all temporary services to the satisfaction of the local authorities and utility companies.

1.4 SANITARY FACILITIES

- A. The contractor shall provide, maintain and remove adequate portable toilet facilities for the use of all construction personnel, located conveniently to work stations. Temporary toilets shall be provided at a rate of one for each fifteen (15) persons, or fractional part thereof. Separate facilities for men and women shall be provided and labeled as required.
- B. All portable toilets shall have a holding tank and be regularly serviced to prevent sewage backup and maintain working condition.

1.5 DRINKING WATER

- A. The contractor shall provide potable drinking water dispensers, cups, waste receptacles, and miscellaneous supplies for the use of their own personnel and subcontractor located in the field office.

1.6 FIELD OFFICES AND STORAGE SHEDS

- A. The contractor is responsible to designate all staging areas based on their construction means and methods and provide a marked up plan using the project Storm Water and Pollution Prevention Plan as a guide to mark up and submit to the Owner and Engineer for approval.
- B. Each Prime Contractor shall provide a suitable ODOT Type A construction field office, tool, and material storage sheds for their own use if deemed necessary. Field offices shall be set up so that on-site construction meetings can be held by the contractor, owner and engineer.
- C. The owner and engineer shall be allowed to use field offices when needed.
- D. Sufficient material storage sheds with raised floors shall be provided for the storage and protection of products to be incorporated into the project. The Contractor shall provide heat and ventilation as required to maintain specified conditions for storage of products and to comply with applicable code requirements and regulations.
- E. Contractor's sheds or trailers shall have the company name and address printed on the sides.
- F. The location of such sheds shall be as approved by the Owner and Engineer.
- G. All field offices shall comply with all codes and safety regulations for fire and personal protection requirements. Each Contractor is to provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.

Minimum size is 15 lbs. In addition, it must comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

1.7 TEMPORARY PAVEMENT AND ROADS

- A. The contractor is required to provide a temporary construction entrance as shown on the project Storm Water Pollution Prevention Plans to allow for access into the site during all-weather conditions.
- B. The contractor is responsible to maintain traffic on all adjacent roads and sidewalks. Provide all flag persons, guards, and signs, all subject to the approval of the local authorities.
- C. Contractors using public or private roads to access the site must conform to all local regulations regarding load limits and use, including necessary permits. If the work of the Contractor requires that portions of the adjacent roads are needed to be closed, after obtaining the Engineer's approval, the work shall be done expeditiously and a detour route if needed shall be provided.
- D. All damage to public or private roads shall be repaired by the Contractor at their own cost and meet the requirements of the local municipality.
- E. All trucks or other vehicles leaving the site at any time shall be cleaned of mud and dirt clinging to wheels and exterior body surfaces.
- F. The contractor is responsible to sweep adjacent roads of mud and debris to keep the road clean to area residents.
- G. All trucks accessing the site or leaving shall have suitable coverings fastened over the load before they enter surrounding paved streets to prevent soil and/or material from spilling onto nearby roads.
- H. If the contractor fails to keep the adjacent roads free of mud, debris etc. and at the direction of the engineer and the municipality a private sweeper may be called and the contractor will be billed and/or this cost deducted from their final payment.
- I. If sidewalks are located adjacent or in the project area the contractor shall install structurally adequate protective walkways designed and stamped by a structural engineer for safe passage way through the construction zone.

1.8 TEMPORARY PARKING

- A. The contractor shall provide temporary parking on site for construction works utilizing the same aggregate section as the construction entrance.

1.9 SIGNAGE

- A. The contractor shall install a sign at the construction entrance indicating the project area for material delivery.
- B. Sign to be cut from standard 4 ft. x 8 ft. weatherproof plywood sheet, or other suitable material. Upon completion of construction the contractor shall remove and dispose of signs.
- C. Contractor shall provide "Construction Entrance Ahead" warning signs along Mennonite Road 400 feet in advance of the construction entrance.

1.10 SITE SECURITY AND PROTECTION

- A. The contractor shall be responsible for all site security including storing and protecting all material and equipment from theft and/or vandalism.
- B. All work that has been installed or material that is stored shall be protected from construction activity and from unauthorized site personnel. Any damage to property, material and products installed shall be replaced by the contractor at their own cost.
- C. The contractor shall carry insurance for theft or vandalism of their equipment and material on site whether installed or stored. The Portage Parks District will not be held responsible for any damages that occurs.

1.11 COLLECTION AND DISPOSAL OF WASTE

- A. The contractor shall provide trash containers and hauling services for the project. The contractor is responsible to maintain a clean site with no trash left loose on-site.
- B. The contractor will be subjected to fines and/or portion of payment withheld for trash that is left loose and litters the adjacent parks property. The area will be cleaned for the Contractor and appropriate charges, including administrative mark-up and supervision costs, will be deducted from the monies due the Contractor failing to perform. This will be done at the time of the next payment request. The clean-up work is likely to be performed for the non-responsive Contractor outside of normal working hours. Premium labor costs will be included in the back charges.
- C. Burning or burying of waste materials on the site will not be permitted.
- D. Washing of waste materials down sewers or into waterways will not be permitted.
- E. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 degrees F

1.11 CONSTRUCTION FENCE

- A. If shown on the Storm Water and Pollution Prevention Plans before construction begins the contractor shall install a general temporary enclosure fence. Locate where indicated on the Drawings. Install in a manner that will prevent people, pets and wild animals from easily entering the work area.

1.12 WORKER SAFETY

- A. Each Contractor shall take all necessary precautions for the safety of employees on the work and shall comply with all applicable provisions of Federal, State and Municipal Safety laws and building codes to prevent accidents or injury to persons on, about or adjacent to the premises where the work is being performed. The Contractors shall comply with all applicable provisions of the "Manual of Accident Prevention in Construction" of the Associated General Contractors of America and IC-3 of the Industrial Commission of Ohio and also OSHA.
- B. The contractor shall provide a designated person who has a valid certificate in first aid training and a fully stocked first aid kit, OSHA compliant shall be maintained on the project site.
- C. Each contractor is required to ensure that his employees are not subject to noise, dust, and/or fume levels which exceed current OSHA standards. Each Contractor is to provide all necessary equipment required during the course of his work to prevent any damage or harm to personnel, structures, and/or the environment.
- D. The contractor shall furnish and install necessary barricades to protect the public and workmen during construction. Comply with recognized standards and code requirements for the erection of substantial, structurally adequate barricades where needed to prevent accidents and losses. Paint with appropriate colors, graphics and warning signs to inform personnel at the site and the public of the hazard being protected against. Provide lighting where appropriate and needed.
- E. Each Contractor is responsible for all required OSHA temporary protection and barricades necessary for the completion of his work. Temporary removal and reinstallation required for access is the responsibility of each Contractor requiring such access.
- F. The contractor shall prohibit smoking and enforce the smoking ban in hazardous fire exposure areas. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of possible fire.
- G. The contractor shall store combustible materials in containers in fire safe locations.

3.14 ENVIRONMENTAL PROTECTION

- A. The contractor shall provide and maintain during construction all Storm Water Pollution and Prevention measures as call for and shown on the project SWPPP plans must be implemented.

- B. The contractor shall provide earthen embankments or similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.
- C. Store fuel in tanks equipped with containment tanks with 110% capacity of the storage tank.
- D. The contractor is responsible for all Storm Water Pollution Prevention inspections during construction and after rain events. All damaged or disturbed practices shall be removed and replaced at no additional costs to the Owner.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

PART 4 – METHOD OF MESUREMENT AND PAYMENT

NOT USED

END OF SECTION

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SECTION 00 16 00 - PRODUCTS AND SUBSTITUTIONS

PART 1 - GENERAL

1.01 SUMMARY

- A. Provide products from one manufacturer for each type or kind as applicable. Provide secondary materials as recommended by manufacturers of primary materials.
- B. Provide products selected or approved equal. Products submitted for substitution shall be submitted with acceptable documentation, and include costs of substitution including related work.
- C. Request for substitution must be in writing. Conditions for substitution include:
 - 1. An 'or equal' phrase in the specifications.
 - 2. Specified material cannot be coordinated with other work.
 - 3. Specified material is not acceptable to authorities having jurisdiction.
 - 4. Substantial advantage is offered to the Owner in terms of cost, time, or other valuable consideration.
- D. Substitutions shall be submitted prior to award of contract, unless otherwise acceptable. Approval of shop drawings, product data, or samples is not a substitution approval unless clearly presented as a substitution at the time of submittal.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

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SECTION 01 70 00 – PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This sections covers all items that are to be coordinated by the general contractor / prime contractor as part of their administrative responsibilities for project closeout, including the following:
 - 1. Substantial Completion Requirements
 - 2. Final punch list procedures
 - 3. Project record document submittal
 - 4. Final cleaning
 - 5. Requirements for Final Completion

1.2 SUBSTANTIAL COMPLETION REQUIREMENTS

- A. General
 - 1. Substantial Completion is achieved when the Contractor's work, or portion thereof, is sufficiently complete, that it is suitable for the Owner's use and occupancy. Actual use and occupancy may not coincide with Substantial Completion. The Owner may defer opening the facility, but the Contractor's obligations are fulfilled when they make the facility suitable for such occupancy.
 - 2. The Owners and Engineer's determination of Substantial Completion will not necessarily be based on the amount of approved progress payments, or the cost of the remaining work. An extensive list of corrections may require that the facility cannot be occupied, even if otherwise usable. This will be determined by the owner.
 - 3. The contract date of Substantial Completion is set in the contract documents and any delay achieving that date is subject to assessing the specified liquidated damage amounts if established by the owner.
- B. Prior to the owner issuing the Substantial Completion, the following items must be obtained to the satisfaction of the owner and engineer:
 - 1. All systems as shown on the project plans have been installed to the satisfaction of the owner and engineer.

2. All utility systems have been installed and tested. Results certifying the tests shall be delivered to the owner and engineer.
 3. All final punch list items have been completed.
 4. All final restoration items including seeding and mulching have been installed.
 5. All Sediment and Erosion Control items have been removed and disposed of.
 6. Any product warranties and installation manuals provided to the owner.
- C. Upon completion of the requirements of the above, the Contractor shall make a written claim of Substantial Completion. The claim must be accompanied by a list of uncompleted work left for Final Completion. Any pending claims for additional compensation and time must also be made at this time.
- D. The Substantial Completion Certificate is transmitted to the Contractor for signing and for agreement to the stated terms. When the signed certificate is returned, the Engineer makes a distribution and the Contractor submits the request for full payment less the value of the uncompleted work.
- E. All warranties will start for the date of issue of the Substantial Completion Certificate.

1.3 FINAL PUNCH LIST PROCEDURES

- A. Upon receipt of Contractor's request, the Owner and Engineer will visit the site and observe the work that was performed for compliance to contract documents. Based on their site visit the following will occur:
1. If the work is completed to the satisfaction of the Owner and Engineer they will prepare a Certificate of Substantial Completion and forward it to the contractor.
 2. If there are items left that are either missing or require corrective actions the Owner and Engineer will issue a final punch list document outlining the deficiencies found at this inspection. The contractor will be responsible to complete these items before a Certificate of Substantial Completion can be issued and final payment provided.
 3. The final punch list will contain the following items:
 - a. List of work completed to date
 - b. Description of deficient or not completed work.
 - c. The number of days to complete the punch list items work

- B. The engineer and owner will provide one (1) follow up site visit to observe items on the punch list for final acceptance. If the items are still not found to be completed and/or deficient the contractor will be instructed to complete these items and the contractor will be held responsible for the cost of another site visit by the Owner and Engineer to observe these items. Payment for their time for an additional site visit will be at time and material for their costs and will be taken from the contractor's final payment.

1.4 PROJECT RECORD DOCUMENT SUBMITTALS

- A. Specific requirements for record documents are indicated in individual sections of the technical specifications and include the final installed locations of all items as shown on the construction documents.
- B. The contractor shall maintain during construction a red-line marked up set of construction documents depicting items of actual installations that vary from the work as originally shown. Mark whichever drawing is most capable of showing "field" condition fully and accurately.
- C. The marked up set of plans shall show indicate all underground utility inverts/elevations as installed including all bends and fittings.
- D. If existing utilities or items were discovered during construction and either were not shown on the plans or in a different location the contractor shall mark up the observed locations on the set of plans.
- E. Where shop drawings are used for mark-up, record a cross-reference at corresponding location on working drawings. Mark with red erasable pencil and, where feasible, use other colors to distinguish between variations in separate categories of work.
- F. Maintain one copy of specifications, including addenda, bulletins, change orders and similar modifications issued in printed form during construction, and mark-up variations in actual work, in red color, in comparison with text of specifications and modifications as issued.
- G. Maintain one copy of all product substitutions, selection of options, and similar information on work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation. Note related record drawing information and product data, where applicable.
- H. Maintain one copy of each product shop drawings data submitted and include variations in product as delivered to site and variations from manufacturer's instructions and recommendations for installation.
- I. Deliver one (1) copy of marked up record documents to the engineer for inclusion on the official record document submittal.

1.5 FINAL CLEANING

- A. The contractor shall provide a final site that is clean and acceptable to the owner and engineer prior to receiving the Certificate of Substantial Completion. The following are items that are required but not limited to for final accepted:
 - 1. Remove all labels that are not required as permanent labels.
 - 2. Remove debris and surface dust from limited-access spaces, including, trenches, manholes, and similar spaces.
 - 3. Clean light fixtures, lenses and lamps so as to function with full efficiency.
 - 4. Clean project site, including landscape areas, of litter and foreign substances. Sweep paved areas to a broom-clean condition; remove stains, petro-chemical spills and other foreign deposits.
- B. Removal of Protection: Except as otherwise indicated or requested by the Engineer, remove erosion and sediment control temporary protection devices and facilities which were installed during course of the work to protect previously completed work during remainder of construction period.

1.6 REQUIREMENTS OF FINAL COMPLETION

- A. As part of the Final closeout documents required to obtain a Substantial Completion Certificate the Contractor must also provide the following items to the owner:
 - 1. Copy of all permits obtained from the authorities necessary for occupying and operating the facility.
 - 2. Record Documents, marked prints of contract drawings, updated specifications and shop drawings, any sketches and notes that record changes made from documents issued by the Owner and Contractor for performing the work.
 - 1. Certified results of all testing during construction that they meet the project specifications.
 - 2. Site has been cleaned and restored to accepted condition by the Owner and Engineer.
 - 3. Letter stating all final punch list items have been completed.
 - 4. Provide all owner's manuals of products.
 - 5. Written notice of Contractor's claim of Final Completion.
- B. Upon receipt of Contractor's claim of Final Completion, the Engineer will conduct an inspection to verify such completion.
- C. Upon completion of inspection, the Engineer will prepare a certificate of final

acceptance, or advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

- D. Upon receipt of notification from the Engineer of acceptance of Final Completion, the Contractor will submit the request for final payment in the amount of the remaining contract sum plus approved change orders, less liquidated damage amounts. The final payment request shall be accompanied by:
1. Consent of surety to final payment.
 2. Evidence of final continuing insurance coverage
 3. Waiver of lien.
 4. Affidavit of wage compliance.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

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DOCUMENT 02 21 20 – CONSTRUCTION STAKING

PART 1 – GENERAL

1.1 WORK INCLUDED

A. This section includes the following.

1. Work included under this section includes all labor, materials and services required to properly and accurately locate line and grade of all new construction, measure line and grade of all existing bench marks.
2. All disturbed property pins and or monument boxes and pins shall be referenced prior to construction and replaced by a registered Surveyor in the State of Ohio.
3. The provisions of ODOT CMS Item 623 shall be followed except as modified herein and as directed by The Portage Parks District and engineer. English units shall be used.

1.2 QUALIFICATIONS

A. All surveying work shall be done under the responsible direction of a surveyor registered as such by the State of Ohio.

PART 2 – PRODUCTS

2.1 SURVEYING

A. All products required to perform the surveying specified herein shall be furnished by the contractor and be equipment common to the practice of surveying in the State of Ohio.

PART 3 – EXECUTION

3.1 CONSTRUCTION CONTROL

A. Bench marks, centerlines and intersections are as shown on the plans. All additional elevation and location information required to execute the project according to these specifications is the responsibility of the Contractor.

- B. Elevations on the plans reference the bench marks. Figured dimensions on drawings take precedence over measurements by scale. Detailed drawings take precedence over general drawings and shall be considered explanatory of them and not as indicating extra work.
- C. Any inspection or checking of the construction survey control or the finished work by the engineer shall not relieve the Contractor of his responsibility to comply with the designed lines and grades, within the specified tolerances, unless requested modifications for constructability are approved by the Portage Parks District in advance.

3.2 RECORD AND AS-BUILTS DATA

- A. The Contractor shall submit to the Portage Parks District and Engineer of Record a set of Record Drawings upon which the as-built constructed lines and grades are clearly recorded. This shall be done in red on a set of 24" x 36" bid and construction drawings. All Record Drawing sheets shall be dated and signed off by the Contractor and submitted to the Portage Parks District and Engineer of Record within 60 days of project completion.
- B. The Record Drawings shall incorporate addenda, change orders, field orders, work directive changes and all other changes to the original drawings to reflect the actual in-place installation of the work.
- C. The Record Drawings shall include, but not be limited to, the location and elevation of all new work, existing structures to remain.
- D. The Record Drawings shall also include the location and elevation of all existing underground utilities and structures, both noted and not noted on the original drawings. These shall be shown on the appropriate drawing plans, elevations and details and shall include observable dimensions and material types.

END OF SECTION

SECTION 31 10 00 - SITE CLEARING

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Contact the Ohio Utility Protection Services (811) and utility companies at least 48 hours prior to any site clearing / excavating operations.
- B. Locate, identify, verify, and protect existing trees and vegetation to remain.
- C. Protect bench marks, survey control points, and ex. site improvements to remain from damage or displacement.
- D. Contractors shall remain within property lines, lease lines, easement areas, designated perimeter limits, or limits of work areas shown on drawing.
- E. Clearing and grubbing. Include complete removal of any remaining stumps & vegetation. Protect plants, trees, vegetation noted to remain.
- F. Topsoil stripping. Apply herbicide to areas to be paved after stripping topsoil.
- G. Removal of above-grade site improvements and removal of any below grade improvements (ex. utilities, building foundations, etc. as applicable in order to install improvements shown on Contract Drawings.
- H. Locate, identify, and mark utilities within site boundaries to remain or be removed. Protect utilities to remain. Disconnect, cap, or seal and abandon site utilities in place per utility co. requirements. If noted on plans backfill pipes to be abandoned in place with grout or LSM. Notify engineer immediately if unknown utilities or utility connections are encountered.
- I. Identify and accurately locate capped utilities and other subsurface structural, electrical, technological, and mechanical conditions, as applicable. Note utility locations on contractor's as-built mark-up plans and submit copy to engineer. Coordinate clearing work and comply with all utility company requirements before starting work.
- J. Backfill any excavated areas with compacted fill suitable for the area. Refer to the backfill specifications and geotechnical report (if applicable) for additional information.
- K. Provide and maintain temporary soil erosion and sedimentation control measures per the project's SWPPP & specifications.
- L. Remove debris from site. Leave site in clean condition ready for earthwork.

- M. Make new openings in curbs and gutters neat, as close as possible to profiles indicated and only to extent necessary for new work.
- N. At concrete, paving, and other materials where edges of cuts remain exposed in the complete work, make cuts using power-saving equipment. Do not overcut at corners of cut openings.
- O. Contractor shall delineate limits of pavement removal in the field, neatly saw cut pavement at limits, remove and dispose off-site the existing pavement. Pavement removal shall include all base and subbase aggregate material.

1.2 DEFINITIONS

- A. "Topsoil": natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shades of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, and other objects more than 1-1/2 inches in diameter; and free of weeds, roots, and other deleterious materials.
- B. Caliper: Instrument used to measure tree diameter.
- C. Clearing: Removal and disposal of above-ground featured items defined herein.
- D. Grubbing: Removal and disposal of below-ground items defined herein.
- E. Salvage: Shall include, but not limited to such as items as castings, piping, brick, steel, iron, copper, brass, aluminum and other metals, wiring, conduits, lighting, signs, etc.

1.3 MATERIALS OWNERSHIP

- A. Except for materials indicated to be stockpiled, salvaged, or to remain on OWNER'S property, cleared materials shall become CONTRACTOR'S property and shall be removed from the site.
- B. The ENGINEER and/or OWNER will direct the CONTRACTOR whether and/or where to store excess stripped topsoil on the property.
- C. If materials are determined to be salvageable and are not shown on the plans to be salvaged, the contractor shall notify the OWNER in writing via email and temporarily store items for them to make a claim. If after one week of notification the contractor is responsible for dispose of them.

1.4 SUBMITTALS

- A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.

- B. Record drawings/log of site clearing items.
- C. Site Clearing Plan; Submit schedule and methods for accomplishment of temporary and permanent erosion control work as applicable for clearing and grubbing, grading operations, borrow pits and haul roads; a plan for disposal of waste materials; and a schedule of operation at locations of high siltation potential in sufficient detail to clearly indicate how siltation of streams, lakes and reservoirs and the interruption of normal stream flows will be held to a practical minimum.

1.5 QUALITY ASSURANCE

- A. Pre-installation conference: conduct conference at project site

1.6 PROJECT CONDITIONS

- A. "Traffic": minimize interference with adjoining roads, streets, parking lots, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from OWNER and authorities having jurisdiction (AHJ).
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by AHJ.
- B. "Improvements on adjoining property": authority for performing indicated removal and alteration work on property adjoining OWNER'S property will be obtained by OWNER before award of contract.
- C. "Salvageable improvements": carefully remove items indicated to be salvaged and store on OWNER'S premises where indicated, or alternate location where applicable.
- D. Existing facilities, structures, and utilities are shown in accordance with available field survey data and record drawings. The indicated locations of trees, underground utilities and structures are approximate. Other trees and utilities may exist which are not indicated. CONTRACTOR shall notify utility locator service before site clearing in accordance with State Revised Code "Protecting underground utility facilities during construction of public improvement".
- E. The Contractor shall employ a qualified utility locating service for all underground utilities outside the public R/W.

PART 2 - PRODUCTS

2.1 NOT USED

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction. Replace if damaged to satisfaction of the OWNER/ENGINEER.
- B. Provide erosion-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties, walkways, roadways, and drives. Install items per the Storm Water Pollution Prevention Plan.
- C. Locate and clearly flag trees and vegetation to remain or to be relocated. Refer to SWPPP plans for additional information.
- D. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to OWNER.
- E. Comply with seasonal and permitting restrictions on when the Contractor may perform the clearing and grubbing operations.

3.2 TREE PROTECTION & REMOVAL

- A. Tree removal is prohibited between April 1st and October 1st due to federally endangered Indiana Bat and Northern Long-Eared Bat which may have roosting habitats in the project area. All tree cutting work must be completed before the March 31st deadline and may not begin until after October 1st.
- B. Remove all trees indicated on the Contract Documents to be removed, and their major roots existing within the area of new pavements and structures.
- C. Areas designated to receive pavement or structures shall be grubbed a depth of 18-inches. Measure cut from existing ground surface or proposed ground surface.
- D. Apply herbicide to remaining roots and vegetation to inhibit growth.
- E. Depressions made by grubbing shall be filled with suitable material and compacted to conform to the original adjacent grades.

- F. Erect and maintain a temporary fence around drip line of individual trees or around perimeter drip line of groups of trees to remain. Remove fence when construction is complete.
 - 1. Do not store construction materials, debris, excavated material, or material stockpiling within drip line of remaining trees.
 - 2. Do not permit vehicles, equipment, stored materials, temporary facilities, or foot traffic within drip line of remaining trees.
- G. Except in areas to be excavated, stump holes and other holes from which obstructions are removed shall be backfilled with suitable material and compacted in accordance with the following:
 - 1. All embankments, except rock embankments, shall be constructed using moisture and density control. All subgrade, except rock and shale in cut sections, shall be constructed using moisture control and density control.
- H. Do not excavate within drip line of trees, unless otherwise indicated.
- I. Where excavation for new construction is required within drip line of trees, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.
 - 1. Cover exposed roots with burlap and water regularly to prevent roots from dying out. Backfill with soil promptly.
 - 2. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.
 - 3. Coat cut faces of roots more than 1-1/2 inches in diameter with emulsified asphalt or other approved coating formulated for use on damaged plant tissues.
 - 4. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction in a manner approved by the Landscape Architect.
 - 5. Use only hand methods for grubbing within drip line of remaining trees.
- J. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by the ENGINEER.
 - 1. Employ a qualified Arborist, licensed in jurisdiction where project is located, to submit details of proposed repairs and to repair damage to trees and shrubs.
 - 2. Replace trees that cannot be repaired and restored to full-growth status, as determined by the qualified Arborist.
- K. Protection of trees and shrubs scheduled to remain shall be assigned to the general CONTRACTOR and shall include tops, trunks and roots. Temporary tree protection fences are required because of proximity to the work. Tree protective fencing should be 6' high chain link (2" mesh) or safety orange mesh fencing. Any pruning required shall be with the approval and direction of the Landscape Architect. The general CONTRACTOR shall be responsible for the survival of protected trees for one (1) year after the construction project is substantially completed.

- L. Low hanging branches and unsound or unsightly branches on trees or shrubs within the project area which are designated to remain shall be removed as directed. Branches of trees extending over the roadbed shall be trimmed to give a clear height of 20 feet above the pavement surface or as directed by the OWNER/ENGINEER.

3.3 UTILITIES

- A. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.
 - 1. Verify that utilities have been disconnected and capped before proceeding with site clearing.
 - 2. Arrange to shut off affected utilities with utility companies.
- B. Existing utilities: do not interrupt utilities serving facilities occupied by OWNER or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Owner and Engineer in writing not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without OWNER'S and Engineer's written permission.
 - 3. The CONTRACTOR is to indicate in construction schedule any known utility interruption.
- C. Excavate for and remove underground utilities indicated to be removed. Include capping/plugging abandon ends of pipes and backfilling pipes/conduits that are to be abandoned in place with low strength mortar or grout.

3.4 CLEARING, GRUBBING AND TOPSOIL REMOVAL

- A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions, and grubbing roots. Strip all objectionable growth. Remove from the site all debris resulting from the stripping operations at frequent intervals to prevent accumulation of material. On-site disposal of material is not permitted.
 - 1. Do not remove trees, shrubs, and other vegetation indicated to remain or relocated.
 - 2. Completely remove stumps, roots, obstructions, and debris extending to a depth of 24 inches below exposed & final subgrade. Do not dispose of on-site.
- B. In a time defined prior to the start of construction, fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
- C. Place fill material in horizontal layers not exceeding 8-inch loose depth, and compact each layer in accordance with requirements for engineered fill.

3.5 TOPSOIL STRIPPING

- A. Strip topsoil to its full depth from entire area to be graded. Stockpile where directed by OWNER and where it will not interfere with construction activities. Install silt fence and/or silt sock round stockpile area. Topsoil to be reused shall be free from roots, brush and debris. Excess topsoil shall be deposited and/or spread on property as directed by the ENGINEER/OWNER. Refer to Geotechnical report, and Landscape drawings, and specifications for additional information.
- B. If stockpiling on-site, remove sod and grass before stripping topsoil.
- C. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
 - 1. Strip surface soil of unsuitable topsoil, including trash, debris, weeds, roots, and other waste materials.
- D. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water away. Cover stockpiles to prevent windblown dust.
 - 1. Limit height of topsoil stockpiles to 72 inches.
 - 2. Do not stockpile topsoil within drip line of remaining trees.
 - 3. Dispose of excess topsoil as specified for waste material disposal.
 - 4. Install and maintain silt fence around any topsoil stockpiles.

3.6 EXISTING SITE IMPROVEMENTS

- A. Remove existing above-and below-grade improvements as indicated and as necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, buildings, foundations, utilities, and aggregate base as applicable.
 - 1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Neatly saw-cut faces vertically.
 - 2. If noted on the drawings address existing wells and septic systems abandonment and/or removal per local Health Department Requirements and Standards.
 - 3. Wet down during the demolition operations to prevent dust from arising. Minimize spread of dust and airborne particles.
 - 4. Raze, remove and dispose of all buildings and foundations, structures, fences, guardrails, old pavement, abandoned pipe lines, storage tanks, septic tanks, vaults and other obstructions any portions of which are within the limits of the project, except utilities and those items for which other provisions have been made for removal. All designated salvageable material shall be removed, without unnecessary damage in sections or pieces which may readily be transported, and shall be stored and protected by the CONTRACTOR at specified places within the project limits.

5. Building demolition shall be performed per the Architect plans and specifications for building removal.

C. Underground Storage Tanks

1. Existing underground storage tanks encountered shall be removed by a certified UST removal contractor and reported to the state. If encountered on the project contact an Environmental Engineer for further direction.

3.7 DISPOSAL

- A. "Disposal": remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off-site at a State certified construction debris or hazardous waste landfill.

1. Do not burn or bury removed materials on project site.
2. If hazardous materials are encountered during clearing operations, notify the ENGINEER for additional instructions. Comply with laws and ordinances concerning removal, handling and protection against exposure or environmental pollution.
3. In order to retard and prevent the spread of destructive insects limit the movement of regulated articles according to state Law.
4. Observe requirements for handling and transporting of regulated articles in quarantined areas as defined by state requirements.
5. Follow all federal and state requirements for quarantines and regulated articles.

END OF SECTION

SECTION 31 20 00 - EARTH MOVING

PART 1 - GENERAL

- A. For this project a Geotechnical Study and Report was provided by PSI dated June 18, 2021 (Revised: June 24, 2021) and is included as part of the bid package. This report governs where any conflict occurs between this section and the recommendations in the report.

1.1 WORK INCLUDES

- A. Preparing sub grades for slabs-on-grade, walks, pavements, lawns, and plantings.
- B. Aggregate base course for asphalt paving.
- C. Subsurface drainage backfill for walls and trenches.
- D. Engineered fill.
- E. Base bids on excavating and filling with materials encountered at site except where special fill or backfill materials are specified herein or indicated on Drawings. No allowance or extra payments will be made by reason of variations in types of soil encountered or variations in their moisture contents. Furnish additional fill material required and included as a part of the work. Include removal of excess or objectionable materials as part of the work.
- F. Excavating and filling areas containing unsuitable material. CONTRACTOR is to supply unit costs with bid for this item. This item is not included in base bid.
 - 1. Unit Cost 1 - Excavate and remove unsuitable material to limits determined by Engineer or Geotechnical Engineer. Properly install and compact excavation with engineered fill (ASTM NO 1's and 2's) over a geogrid and proof roll to verify suitability. In the event the engineered fill is found to be unsuitable it is the sole responsibility of the CONTRACTOR to provide a suitable backfilled excavation to the OWNER/ARCHITECT or ENGINEER. Provide cost per Cubic Yard.

1.2 DEFINITIONS

- A. Backfill: soil materials used to fill an excavation.
 - 1. Initial Backfill: backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
 - 2. Final Backfill: backfill placed over initial backfill to fill an excavated area to final grade.

- B. Base Course: layer placed between the sub-base course and asphalt paving.
- C. Sub-base course: layer placed over the excavated sub-grade in a trench before laying pipe. Layer placed between the sub-grade and base course for asphalt paving, or layer placed between the sub-grade and a concrete pavement or walk.
- D. Sub-grade: surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below sub-base, drainage fill, or topsoil materials.
- E. Borrow Soils: satisfactory soil imported from off-site for use as fill or backfill as approved by the Geotechnical Engineer.
- F. Drainage Course: layer supporting slab-on-grade used to minimize capillary flow of pore water.
- G. Excavation: removal of material encountered above sub-grade elevations.
 - 1. Additional Excavation: excavation below subgrade elevations as recommended by the testing agency and approved by the OWNER/ENGINEER to reach specified compaction level. Additional excavation, replacement, and proof-roll unit costs are to be included in the base contract amount.
 - 2. Bulk Excavation: excavations more than 10 feet in width and pits more than 30 feet in either length or width.
 - 3. Unauthorized Excavation: excavation below sub-grade elevations or beyond indicated dimensions without direction by the testing agency and approved and directed by the OWNER/ENGINEER. Unauthorized excavation, as well as remedial work recommended by the testing agency and approved and directed by the OWNER/ENGINEER, shall be without additional compensation.
- H. Fill Soils: suitable soil materials, as determined by the testing agency geotechnical engineer and the OWNER/ENGINEER, used to raise existing grades.
- I. 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 as shale: mudstone, claystone, siltstone and clay bedrock.
- J. Rock: rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material exceeding 1 C.Y. for bulk excavation or 3/4 C.Y. for footing, trench, and pit excavation that cannot be removed by rock excavating equipment, without systematic drilling, ram hammering, ripping, or blasting, when permitted.
- K. Structures: buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

- L. Utilities: Include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings, as applicable.
- M. Optimum Moisture: The water content at which the maximum density is produced in a soil as determined ASTM D698 (Standard Proctor), or field test strip.
- N. Field Testing: Testing of fill and subgrade compaction shall be as directed by the OWNER/ENGINEER and performed by the Contractor's testing agency.
- O. 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 D698

1.3 SUBMITTALS

- A. Product data for the following:
 - 1. Notify and provide data to regulatory authorities and OWNER/ENGINEER prior to commencement of work.
 - 2. Provide notice of: encounter with unknown utilities; subgrades before filling; areas requiring testing or inspection.
 - 3. Materials Sources: Name of fill material source, location, date of sample, sieve analysis, and laboratory compaction characteristics.
 - 4. Disposal Locations: Name and location of final destination for all materials hauled off site.
- B. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
 - 1. Classification according to ASTM D2487 of each on site and borrow soil material proposed for fill and backfill.
 - 2. Current laboratory compaction curve according to ASTM D698 for each on site and borrow soil material proposed for fill and backfill.
 - 3. Field reports; in-place soil density tests.
 - 4. One optimum moisture – maximum density curve for each type of soil encountered.
 - 5. Report of actual unconfined compressive strength and/or results of bearing tests of each strata tested.
 - 6. Test reports must be submitted daily to the Owner and Engineer.
 - 7. Water Content

C. Samples: for the following (if indicated by X below):

1. 30-lb samples sealed in airtight containers, of each proposed soil material from on-site or borrow sources and engineered fill materials delivered to geotechnical testing agency for running proctor tests. Document borrow material source(s) for each sample submitted. Documentation shall include name of source, location, date of sample, sieve & grain size analysis, soil characteristics, unit weight, and Std. Proctor laboratory compaction results at designated optimum moisture content.

1.4 QUALITY ASSURANCE & REPORTS

A. Reference Standards:

1. American Association of State Highway and Transportation Officials (AASHTO).
2. American Society for Testing and Materials (ASTM).
3. Ohio State Department of Transportation "Construction Materials Specifications", 2019 or current edition.

B. "Codes and Standards" - perform earthwork complying with requirements of authorities having jurisdiction.

C. Tolerances: As indicated herein.

D. "Geotechnical Testing Agency Qualifications" - an independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.

E. Soil testing service: The CONTRACTOR will engage a qualified independent testing agency to perform material evaluation tests for all geotechnical work specified herein. The testing agency shall provide the OWNER/ENGINEER a letter certifying soil material used and compaction results. All requested extra work and/or change orders based on existing soil conditions or tests of soils that do not meet the project specifications shall be approved and directed by the OWNER /ENGINEER.

F. Testing: Requirements as specified herein.

G. The testing agency shall provide results from field density testing during construction to OWNER/ENGINEER. Note material sampled and characteristics of soil. CONTRACTOR is to be advised immediately of tests failing to meet specifications. CONTRACTOR is solely responsible to correct deficiencies and to supply test and proof rolling results to Engineer in order to confirm suitability.

1.5 PROJECT CONDITIONS

- A. Subsurface Conditions: Subsurface soils investigations have been made at the site.
- B. Existing Utilities: do not interrupt utilities serving facilities occupied by OWNER others unless permitted in writing by OWNER/ENGINEER, and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify OWNER/ENGINEER not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without OWNER/ENGINEER written permission.
 - 3. The utilities protection service does not locate utilities outside public R/W's. The CONTRACTOR shall employ a qualified utility locating service for all underground utilities on the project.
 - 4. Cut and cap, demolish, and completely remove from site existing underground utilities indicated to be removed in accordance with both City and utility provider requirements. Coordinate with utility companies to shut off services if lines are active. The Engineer may, with written approval, allow abandoned utilities greater or equal to 6" diameter, located under parking or buildings, to be completely filled with non-shrink grout or LSM.
 - 5. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult Utility OWNER/ENGINEER immediately for directions. Cooperate with OWNER/ENGINEER and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to the satisfaction of the Utility OWNER/ENGINEER and the utility owner representative.

1.6 PROTECTION

- A. Safety: Provide protective measures necessary for the safety of workmen, to the public and adjacent property. Prevent cave-ins, collapse of walls, structures, and slopes, both on and adjacent to the site.
- B. Standards: Comply with regulations of local authorities having jurisdiction, including all applicable O.S.H.A. requirements.
- C. Repair: Includes the removal and replacement with new materials affected by settlement.

1.7 ENVIRONMENTAL CONDITIONS:

- A. Do not apply soil treatment when temperature is at or below freezing or when ground is frozen or frost is expected.

- B. Do not apply soil treatment when surface water is present.

1.8 EXISTING CONDITIONS:

- A. Accept the site in the condition which it exists at the time of the award of the contract and perform all work to the grades indicated.
- B. Protect plant material, lawns and other features not designated for removal.
- C. Protect bench marks, existing structures, fences, sidewalks, paving and curbs from excavating equipment and vehicular traffic.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soil Materials:
 - 1. Complying with American Association of State Highway and Transportation Officials (AASHTO) M145, soil classification Groups A-1, A-2-4, A-2-5, and A-3. Soil classification Group A-6 may be satisfactory if approved by the testing laboratory.
 - 2. Complying with ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, AND SM, or a combination of these group symbols; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter. CL can be used if approved by the geotechnical testing agency engineer and approved by the OWNER.
 - 3. Compacted fill and backfill shall be free of deleterious matter such as frozen materials, organics, wood, debris, or rock larger than 4 inches.
 - 4. All material shall have a liquid limit and plasticity index not exceeding 40 and 15 respectively when tested in accordance with ASTM D-4318.
 - 5. The minimum dry unit weight shall not be less than 110 PCF maximum dry density as determined by ASTM D-1557 (Modified Proctor).
 - 6. All fill and backfill materials shall be obtained from on site or from off-site sources and shall be approved by the Geotechnical Engineer prior to placement.
 - 7. Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

C. Unsatisfactory Soils:

1. ASTM D 2487 soil classification groups GC, SC, MH, CH, OL, OH, and PT, or a combination of these group symbols.
2. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
3. Unsatisfactory soil materials are those defined in AASHTO M145 soil classification Groups A-2-6, A-2-7, A-4, A-5, and A-7; also, peat and other highly organic soils. Material that fails to meet requirements for suitable materials; or contains any of the following:
 - a. Organic clay, organic silt, or peat; as defined in ASTM D2487.
 - b. Vegetation, wood, roots, leaves, or organic, degradable material.
 - c. Stones or rock fragments over six inches in any dimension.
 - d. Porous biodegradable matter, excavated pavement, construction debris, rubbish, or refuse.
 - e. Ice, snow, frost, or frozen soil particles.
 - f. Slag.

D. General Fill: Suitable, unclassified soils.

E. Structural Fill: Suitable material that is classified by the Unified Soil Classification System (USCS) in accordance with ASTM D2487 as GW, GP, GM, SW, SP, SM, or if approved CL. Verify that the largest particles in the fill are no greater in dimension than one-half the thickness of the compacted lift thickness.

1. Representative samples of the proposed fill materials should be collected at least one week prior to the start of the filling operations. The samples should be tested to determine the maximum dry density, optimum moisture content, particle size distribution and plasticity characteristics. These tests are needed to determine if the material is acceptable as structural fill and for quality control during the compaction process.
2. All on site material that is stockpiled and designated to be used as Structural Fill shall be field tested and evaluated by the testing agency Geotechnical Engineer to determine if it meets the requirements ODOT and the additional requirements as set forth in this section. Written acceptance from the testing agency and owner shall be obtained prior to be accepted as Structural Fill.
3. The fill should be placed in layers of not more than 8 inches in thickness, with each layer being compacted to a minimum density of 100 percent of the maximum dry

density and within $\pm 2\%$ of the optimum moisture content, as determined by the Standard Proctor Method ASTM D-698. Moisture control (increasing or decreasing the natural moisture content) of the engineered fill materials may be necessary for compaction.

4. Rock, shale and boulders is prohibited from being used as structural fill and shall be hauled and disposed of offsite.
 5. Silt shall not be used as fill in new pavement or building areas.
 6. The Structural Fill shall not be in a frozen condition during placement and should not be placed on a frozen subgrade.
- F. Granular Engineered Fill: naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a no. 200 sieve.
1. Engineered fill materials should consist of non-expansive materials. Pyritic and/or potentially expansive materials, such as mine tailings and slag should not be used as engineered fill material. Materials selected for use as engineered fill shall be properly moisture conditioned, inorganic and free of organic matter, cobbles, boulders, waste construction debris, or other deleterious materials.
 2. Fill materials shall have a Standard Proctor maximum dry density greater than 110 pounds per cubic foot (pcf), an Atterberg Liquid Limit less than 40, a Plasticity Index of less than 15, organic content less than 1% and a maximum particle size of 2 inches or less.
- G. Drainage fill:
1. Washed, narrowly graded mixture of crushed stone, or crushed or uncrushed gravel, (ASTM D 448 Coarse - aggregate grading size 57), with 100% passing of 1-1/2" sieve and not more than 5% passing a No. 8 sieve. Aggregate shall meet MSHA specification for No. 6 aggregate. Provide by CONTRACTOR from off-site source.
 - a. Located under all slab on grade areas.
- H. Backflow at Below Grade Walls
1. Provide a 24" wide zone of free draining gravel behind all below grade.
- I. Pavement Backfill:
1. Base: material shall comply with the requirements of ODOT Section 304 Aggregate Base Course.
 2. Sub Grade Preparation: material shall comply with the requirements of ODOT

Section 203 and Section 204, Aggregate Base.

- J. Backfill for Utilities:
 - 1. See Section 31 23 33 Trenching and Backfill
- K. Filter Material: narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading size 67; with 100 percent passing a 1- inch sieve and 0 to 5 percent passing a no. 4 sieve.
- L. Impervious Fill:
 - 1. Where noted on plans): clayey gravel and sand mixture capable of compacting to a dense state at optimum moisture content. In special instances the Engineer may recommend the use of bentonite clay or an impervious (EDPM or approved equal) material. Special instances are not included in base bid.
- M. Top Soil:
 - 1. Clean natural topsoil free of vegetation, debris and other deleterious matter, and approved by OWNER/ARCHITECT or ENGINEER Representative. Upper 6 inches of topsoil stripped may be used, if suitable, otherwise use imported, screened, loose, fertile, friable, free of grass, brush, roots and rocks > 1-1/2" diameter, loamy soil possessing characteristics representative of productive growing soils in the area.
- N. Drainage Fabric, Separation Fabric, Erosion Control Blankets and Erosion Control Fiber Mesh
 - 1. See Section 31 32 19 Geotextile Fabric

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verify existing ground surfaces have been stripped of topsoil, root mat and existing pavement, unsatisfactory soils, concrete spoil, obstructions and deleterious material.
- B. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- C. Protect sub-grades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.
- D. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent

properties, walkways, and roadways.

- E. Protect trees, shrubs, lawns, rock out-croppings, and other features remaining as a portion of final landscaping.
- F. Protect benchmarks/project control, existing structures, fences, sidewalks, paving, and curbs from equipment and vehicular traffic.
- G. Protect above and below grade utilities which are to remain.
- H. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation. Monitor shoring system and surrounding ground surface during construction to detect movement. If movement becomes significant, take contingency steps to brace excavation and adjacent utility lines.
- I. Notify OWNER or ENGINEER Representative of unexpected subsurface conditions and discontinue work in affected area until notified to resume work.
- J. Grade excavation top perimeter to prevent surface water run-off into excavation.
- K. Material cut or excavated from building areas which is suitable for backfilling may be stored on site to be distributed later.
- L. Remove unsuitable and/ or excess material from site immediately.
- M. Establish extent of excavation by area and elevation; designate and identify datum elevation.
- N. Set required lines and levels.
- O. Maintain bench marks, project control monuments, and other reference points. Relocate if necessary and reference all benchmarks to remain so that it can be reestablished if disturbed.
- P. Before starting excavation, establish location and extent of underground utilities occurring in work area.
- Q. Notify utility companies to remove and relocate lines which are in way of excavation. Maintain, reroute or extend as required, existing utility lines to remain which pass through work area.
- R. Protect utility services uncovered by excavation.
- S. Upon discovery of unknown utility or concealed condition, discontinue affected work and notify OWNER/ ENGINEER representative immediately.

3.2 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared sub-grades, and from flooding project site and surrounding area. Unsuitable soils as a result of improper dewatering are to be removed and replaced at the General CONTRACTOR's expense.
- B. Protect sub-grades from softening, undermining, washout, and damage by rain or water accumulation. Unsuitable soils as a result of improper sub-grade protection are to be removed and replaced at the CONTRACTOR's expense.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
 - 2. Install a dewatering system or drainage trench, when necessary to keep sub-grades dry and convey ground water away from excavations in accordance with the recommendations of the geotechnical report. Maintain system until dewatering is no longer required.
 - 3. Prevent surface water and subsurface or ground water from flowing into excavations and from flooding Project site and surrounding area.
 - 4. Do not allow water to accumulate in excavations.
 - 5. If presence of subsurface water is encountered during excavation, provide interior drainage.
 - 6. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations.
 - 7. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or run-off areas.

3.3 EXPLOSIVES

- A. The use of explosives is prohibited.

3.4 EXCAVATION, GENERAL

- A. Unclassified excavation: excavation to, and beyond, sub-grade elevations as necessary to reach specified compaction level, regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions. Unclassified excavated material may include rock, soil materials, and obstructions. Changes in the contract sum or the contract time will be authorized in writing by the OWNER/ENGINEER for excavation or

removal of unclassified material.

- B. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials as directed and approved by testing agency geotechnical engineer and the OWNER/ENGINEER.
- C. Replacement of soils shall be included in both the contract time and contract sum. No adjustments shall be authorized to either component for such occurrences.
- D. Verify areas to be backfilled are free of debris, snow, ice or water, and ground surfaces are not frozen.
- A. Proof roll exposed subgrade in building and paving areas with 20 cu. yd. (min.) fully loaded dump truck or similar acceptable construction equipment, to detect unsuitable soil conditions. Commence proof rolling operations after a suitable period of dry weather to avoid degrading acceptable subgrade surfaces. Make 8 passes over each section with proof rolling equipment, with the last 4 passes perpendicular to the first 4 passes. Testing agency geotechnical engineer and the representative must be present for proof roll.
- E. Cut out soft areas of subgrade not readily capable of in-situ compaction. Backfill and compact to density equal to requirements for suitable backfill material. Refer to Section 2.0.
- F. Site backfill systematically, as early as possible, to allow maximum time for natural settlement. Do not backfill over porous, wet or spongy subgrade surfaces.
- G. Stability of Excavations: Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of materials excavated.
 - 1. Maintain sides and slopes of excavations in safe conditions until completion of backfilling.
- H. Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers, and cross-braces, in good serviceable condition.
 - 1. Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.
 - 2. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

3.5 EXCAVATION FOR STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or

minus 1 inch.

- B. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
 - 1. Excavations for footings and foundations: do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
 - 2. Excavation for underground tanks, basins, and mechanical or electrical utility structures: excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended for bearing surface. Extend excavation sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.
 - 3. Refer to geotechnical report for additional recommendations.
 - 4. Locate and mark existing underground utilities and services before beginning structural excavation.
 - 5. Provide excavation for structures and footings, as required for construction, bracing and removal of forms, applying waterproofing, and to permit inspection.
 - 6. Machine slope banks to angle of repose or less until shored. Do not allow excavation to interfere with normal 45 degrees angle bearing splay of any foundation.
 - 7. Ensure bottom of excavation is reasonably level.
 - 8. Maintain excavations in as near their natural moisture conditions as possible.
 - 9. Fill over-excavated areas under structure bearing surfaces in accordance with testing agency geotechnical engineer direction.
 - 10. Do not allow construction equipment to create "pumping" of soils.
 - 11. Remove boulders or cobbles.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades.
- B. Where rock or concrete spoil is encountered, carry excavation 18" below subgrade and backfill with suitable material approved by the testing agency

geotechnical engineer and the OWNER/ENGINEER.

3.7 EXCAVATION FOR UTILITY TRENCHES

- A. See Section 31 23 23 Trenching and Backfill.

3.8 APPROVAL OF SUB-GRADE

- B. Notify testing agency when excavations have reached required sub-grade.
- C. If testing agency determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed with written approval of testing agency geotechnical engineer and the OWNER.
 - 1. Additional excavation and replacement material included in the CONTRACTOR's sum will be addressed either by unit price or allowance.
- D. Proof roll sub-grade with fully loaded, 20 yd (min.) tandem dump truck to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated sub-grades. The testing agency geotechnical engineer must be present for proof roll.
- E. Reconstruct sub-grades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as recommend by the testing agency geotechnical engineer and directed by OWNER/ENGINEER.

3.9 UNAUTHORIZED EXCAVATION

- A. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of the testing agency geotechnical engineer and the OWNER/ENGINEER.
- B. Unauthorized excavation, as well as remedial work directed by the testing agency geotechnical engineer and the OWNER/ENGINEER shall be at CONTRACTOR's expense.
- C. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete or LSM fill may be used when approved by the testing agency geotechnical engineer and the OWNER/ENGINEER.
 - 1. Fill unauthorized excavations under other construction or utility pipe as directed by the testing agency geotechnical engineer and the OWNER/ENGINEER..
 - 2. Consists of material removal beyond indicated subgrade elevations or dimensions without specific direction of the testing agency geotechnical engineer and the OWNER/ENGINEER.

3. Correct unauthorized excavation, as well as remedial work as directed by the testing agency geotechnical engineer and the OWNER/ENGINEER, at no additional cost to OWNER.
4. Backfill and compact other unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by the testing agency geotechnical engineer and the OWNER/ENGINEER.

3.10 ADDITIONAL EXCAVATION:

- A. When excavation has reached required subgrade elevations, notify soils testing laboratory for examination of conditions.
- B. If unsuitable bearing materials are encountered at required subgrade elevations, excavate deeper and replace excavated material as directed by soils testing laboratory.
- C. Removal of unsuitable material and its replacement as directed will be paid on basis of Contract conditions relative to changes in Work. Proof rolling is to be included.

3.11 COLD WEATHER PROTECTION

- A. Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F. (1-degree C.).

3.12 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow materials and satisfactory excavated soil materials when and where directed by the testing agency geotechnical engineer and the OWNER/ENGINEER. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water away. Cover stockpiles to prevent windblown dust.
 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.
 2. Prevent saturation of soil above the optimum moisture content.
 3. Install silt fence/ silt sock around periphery of any topsoil stockpiles

3.13 BACKFILL

- A. Place and compact backfill in excavations promptly, or within time as specified by the Contract Documents, but not before completing the following:
 1. Construction below finish grade including, where applicable, damp proofing, waterproofing, and perimeter insulation.

2. Surveying locations of underground utilities for record documents.
3. Inspecting and testing underground utilities.
4. Concrete and masonry have cured 28 days and is adequately braced.
5. Removing concrete formwork.
6. Removing trash and debris.
7. Removing temporary shoring and bracing, and sheeting.
8. Installing permanent or temporary horizontal bracing on horizontally supported walls.

3.14 FILL

- A. Preparation: remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.
- B. Plow, scarify, bench, or break up sloped surfaces steeper than 8 H to 1 V so fill material will bond with existing material. Bench into the existing slope per ODOT Document GB2 Special Benching and Sidefill Embankment Fills and in addition as follows:
 - a. Scalp the existing slope according to ODOT Item 201.
 - b. Cut horizontal benches in the existing slope to a sufficient width to blend the new embankment with the existing embankment and to accommodate placement, and compaction operations and equipment.
 - c. Bench the slope as the embankment is placed and compact in layers.
 - d. Begin each bench at the intersection of the existing slope and the vertical cut of the previous bench. Recompact the cut materials along with the new embankment.
- C. Place and compact fill material in layers to required elevations at locations as follows:
 1. Under grass and planted areas, use satisfactory screened topsoil.
 2. Under walks and pavements, ODOT 304 Aggregate Base and if subgrade is deficient provide engineered fill. Extend five (5) beyond the pavement edge and shall include the support slopes to their full width.
 3. Under steps and ramps, use structural fill.
 4. Under building slabs, use structural fill unless noted otherwise on structural drawings. Extend five (5) beyond the building edge and shall include the

support slopes to their full width.

5. Under footings and foundations, use structural fill unless noted otherwise on structural drawings.
6. Drainage fill material shall be proof rolled to a uniform stable condition prior to placement of vapor retarder.
7. Do not place fill on frozen ground

3.15 MOISTURE CONTROL

- A. Uniformly moisten or aerate sub-grade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
 1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
 2. Remove & replace, or scarify & air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 % and is too wet to compact to specified dry unit weight

3.16 COMPACTION OF BACKFILLS AND FILLS

- A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure. Take care to prevent wedging action of backfill against structures by carrying material uniformly around structure to approximately same elevation in each lift.
- C. Compact soil to not less than the following percentages of maximum dry unit weight according to Std. Proctor test ASTM D 698.
 1. Unless specified elsewhere in the Geotechnical Report, under structures, building slabs and steps the compaction should be a minimum of 100 percent of the optimum density.
 2. Under walkways, scarify and re-compact top 6 inches below subgrade and compact each layer of backfill or fill material at 98 percent (Standard Proctor).
 3. Under lawn or unpaved areas, scarify and re-compact top 6 inches below sub-grade and compact each layer of backfill or fill material at 95 percent.
 4. Top 12" of sub-grade under roadways, drives, parking areas, foundations, backfill, footings, pads, paved pedestrian walks and courts, loading docks and

paving primarily for vehicle traffic, the compaction shall be a minimum of 100 percent.

3.17 SUB-BASE AND BASE COURSES

- A. Under pavements and walks, place sub-base course on prepared sub-grade and as follows:
 - 1. Place base course material over sub-base.
 - 2. Compact sub-base and base courses at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 100 percent of maximum dry unit weight according to ASTM D 698 (standard proctor).
 - 3. Shape sub-base and base to required crown elevations and cross-slope grades.
 - 4. When thickness of compacted sub-base or base course is 6 inches or less, place materials in a single layer.
 - 5. When thickness of compacted sub-base or base course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.
- B. Pavement shoulders: place shoulders along edges of sub-base and base course to prevent lateral movement. Construct shoulders, at least 60 inches wide, of satisfactory soil materials and compact simultaneously with each sub-base and base layer to not less than 100 percent of maximum dry unit weight according to ASTM D 698.

3.18 GRADING

- A. See Section 31 22 00 Grading

3.19 PROTECTION

- A. Protecting graded areas: protect newly graded areas from traffic, freezing, and erosion. Keep all areas graded to drain, free of ruts, ponding water, trash, and debris. CONTRACTOR is to pump off all ponding water immediately. Keep free of trash and debris.
- B. Repair and reestablish grades to specify tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 - 1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and re-compact.
- C. Where settling occurs before project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct

surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible, as satisfactory to the OWNER/ENGINEER.
- D. Protect areas with slopes exceeding 3 H to 1 V with erosion-control fiber mesh and with erosion-control blankets installed and stapled according to manufacturer's written instructions.
- E. Unless noted otherwise, protect areas with slopes not exceeding 3 H to 1 V by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.

Anchor straw mulch by crimping into topsoil with suitable mechanical equipment, use tackifier, or erosion control netting. Maintain during construction

3.20 FIELD QUALITY CONTROL

- A. Testing agency: The CONTRACTOR shall engage a qualified independent Geotechnical Engineering testing agency to perform field quality-control testing/compliance.
- B. Allow testing agency to inspect and test sub-grades and each fill/backfill layer. Proceed with subsequent earthwork only after field test results for previously completed work comply with requirements.
- C. Footing Sub-grade: at footing sub-grades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing sub-grades may be based on a visual comparison of sub-grade with tested sub-grade when approved by the Geotechnical Engineer.
- D. Testing agency will test compaction of soils in place according to ASTM D 698, ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
 1. Paved and building slab areas: at sub-grade and at each compacted fill and backfill layer, at least one test for every 2,000 S.F. or less of paved area or building slab, but in no case fewer than three tests. In each compacted fill layer, make one field density test for every 2,000 sq. feet of overlaying building slab or paved area, but in no case less than 2 tests. Field density tests shall be made at all walkway entrances and ramps into the proposed building.
 2. Foundation wall backfill: at each compacted backfill layer, at least one test for each 100 feet or less of wall length, but no fewer than two tests.

3. Trench backfill: at each compacted initial and final backfill layer, at least one test for each 150 feet or less of trench length, but no fewer than two tests.
 4. Footing Subgrade: For each strata of soil on which footings will be placed, conduct at least one test to verify required design bearing capacities. Subsequent evaluation and approval of each footing subgrade should be performed by Geotechnical Testing Agency.
 5. Lawns, athletic fields and areas receiving topsoil: Perform field density tests on a spot-check basis to assist the CONTRACTOR in determining if compaction is in accordance with the specifications.
- E. When testing agency reports that sub-grades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten, aerate, or remove and replace soil to depth required; re-compact and retest until specified compaction is obtained.

3.21 TESTING AND INSPECTION

- A. INSPECTION AGENCY: Inspect and test construction of embankments, fills, backfills, trenches, and subgrades and report to the OWNER/ENGINEER conformance in all particulars to specification requirements.
- B. Scheduling:
1. Assign qualified personnel to be on site at all times when operations are scheduled.
 2. The CONTRACTOR should note that no earthwork operation shall be permitted in their absence.
- C. Responsibilities:
1. Evaluation of subgrade preparation and suitability.
 2. Moisture content and field density tests on all layers of fill and backfill material placed.
 3. Evaluation of degree of compaction attained for all fill and backfill material placed.
 4. Testing and evaluation of borrow material.
 5. Sources of borrow and of select fill.
 6. Footing subgrade suitability.
 7. Inspection of installation of subdrainage system.

D. Results of Tests:

1. Make results available to the OWNER/ENGINEER immediately upon completion of areas of layers.

E. Final Report: The Geotechnical Testing Agency shall prepare a written report that summarizes the work inspected during the course of the project. A discussion of all deviations from the contract documents and specifications, with their related impact on the final construction, shall be described in detail. The engineer of record shall review this final report and recommend corrective measures (as deemed necessary) that must be made prior to final acceptance of the work. Prior to final payment, a written report certifying that the work meets the requirements of the contract documents, specifications, and all governing agencies shall be prepared, submitted, and approved by the ENGINEER.

3.22 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off-site.
1. Do not burn or bury removed materials on project site.
 2. If hazardous materials are encountered during clearing operations, notify the Engineer for additional instructions. Comply with laws and ordinances concerning removal, handling and protection against exposure or environmental pollution.

END OF SECTION 312000

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Trail SECTION 31 22 00 - GRADING

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. This section includes the following.
 - 1. Rough Grading
 - 2. Finish Grading
 - 3. Stockpiling of topsoil and subsoil
 - 4. Disposal of unsuitable and excess materials

1.2 DEFINITIONS

- A. "Topsoil": natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay. Particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, and other objects more than 1-1/2 inches in diameter; and free of weeds, roots, and other deleterious materials.
- B. CM refers to Construction Manager

1.3 SUBMITTALS

- A. Provide final As Builts survey and letter certifying storm water detention, retention, bio-retention cells have been constructed to the plan dimensions shown on the plans.

1.4 QUALITY ASSURANCE

- A. Pre-installation conference: Conduct conference at project site

PART 2 - PRODUCTS

2.1 NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify survey benchmarks and intended elevations of work.
- B. Verify all Storm Water Pollution Prevention Plans erosion control measures have been installed correctly prior to commencing work.
- C. Immediately notify the Owner and Engineer if suspected hazardous materials are encountered and cease operations in that area.
- D. Identify areas loosened by frost action, softened by flowing or weather, or containing unsuitable materials.

3.2 PREPARATION

- A. Remove material loosened by frost action, softened by flooding or weather, or containing unsuitable material. Replace and compact to same requirements as for specified fill in Section 312000 Earth Moving.
- B. Stake and flag all known utility locations.
- C. Identify required lines, levels, grades and benchmarks/datums.
- D. Locate and protect all above ground and below ground utilities, structures, signage, landscaping, light poles, poles and other item.to remain.
- E. Notify all private utility owners of work near their facilities.

3.3 GENERAL

- A. Uniformly grade areas to a smooth surface, free from 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.

3.4 EROSION CONTROL

- A. All erosion control must comply with:
 - 1. Ohio Rainwater and Land Development Manual Standards and Specifications for Erosion and Sediment Control (Blue Book) and the Storm Water Pollution Prevention Plans.
 - 2. Protect areas with slopes exceeding 3H to 1V with erosion-control fiber mesh and with erosion-control blankets installed and stapled according to manufacturer's written instructions.
 - 3. Unless noted otherwise, protect areas with slopes not exceeding 3H to 1V by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/ acre to from a continuous blanket 1-1/2" in loose depth over a seeded area. Spread by hand, blower, or other suitable equipment.

3.5 ROUGH GRADING

- A. During all grading work the Contractor shall provide positive drainage across the site to the temporary storm water facilities.
- B. Topsoil remove and stockpile
 - 1. Strip all topsoil from areas that are to be excavated, landscaped, graded, or to have a structure built on it. See project Geotechnical Report for topsoil depth.
 - 2. Do not strip topsoil when wet or during inclement weather such as rain or snow.
 - 3. Separate all organic matter such as root zones, trash debris etc. from topsoil. Dispose of organic material off-site.
 - 4. Provide an area on site to stockpile the topsoil for future use on site or to be hauled away. Provide silt fence around the stockpile area. Keep topsoil away from other site soils.
- C. Subsoil removal and stockpiling
 - 1. Remove subsoil from areas that are to be excavated, landscaped, graded, or to have a structure built on it. See project Geotechnical Report for topsoil depth.
 - 2. Do not strip subsoil when wet or during inclement weather such as rain or snow.
 - 3. Provide an area on site to stockpile the topsoil for future use on site or to be hauled away. Provide silt fence around the subsoil area. Keep subsoil away from other site soils.
- D. Rough grade lawn area to a maximum of 4 H to 1 V. Steeper grades will require ground cover planting. Provide roundings at top and bottom of banks and at breaks in grade.
- E. Benching Slopes: All slopes that are steeper than 8H to 1V shall be benched horizontally to key the fill material into the slope for firm bearing and stability. Follow guidelines as call out in ODOT Document GB2 Special Benching and Sidefill Embankment Fills.

- F. Stability: Any damaged or displaced subsoil shall be replaced to the same requirements as called for in Section 31 20 00 Earth Moving.
- G. Disc level surfaces.
- H. Rough grade the site to achieve lines and grades indicated with allowances for imported fill thickness.
- I. Provide positive drainage from all buildings per the slope and grades show on the Site Grading Plan.

3.6 FINISH GRADING

- A. Prior to commencing with finish grading perform the following:
 - 1. Verify the subgrade prior to the placement of soil is properly contoured to the elevations shown on the plans and compacted per the requirements of Section 31 20 00 Earth Moving.
 - 2. Verify that all backfill has been accepted and approved.
- B. Fine grade the site to the final plan elevations shown on the Grading Plan. All uneven areas and depressions shall be corrected to allow for positive drainage. Follow the profile of the subgrade and bring to the final elevations as shown on the plans.
- C. Scarify sub-grade to a minimum depth of 5 inches before placement of topsoil. Remove all waste material.
- D. Minimum depth for compacted screened topsoil shall be 6 inches for grass and adequate depth for other planting materials.
- E. Protect newly graded areas from the elements. Repair all settlement and erosion and re-establish grades to the required elevations prior to acceptance.
- F. If unstable soil or subgrade is encountered during construction the contractor shall notify the Owner and Engineer to approve corrective actions.
 - 1. If approved, the Contractor shall remove some or all the unstable soil, place synthetic fabric and over material, or place aggregate refill, the finish graded section using approved material and compacted per Section 312000 Rough Grading.
 - 2. The Contractor shall coordinate this work with the OWNER/CM or ENGINEER in way that final measurements of the corrective measures taken can be measured and quantified.

3.7 STOCKPILING

- A. As part of the Site Clearing Plan called for in Section 312000 Site Clearing provide an area on site to stockpile topsoil and excavated subsoil. Do not place the stockpiles over existing or new utilities unless approval is granted by the Owner and Engineer.
- B. Provide positive drainage away from stockpile to prevent ponding or flooding of project area. Direct all drainage to temporary storm water facilities.
- C. The topsoil and subsoil stockpile shall be sloped no steeper than 2H:1V and at a maximum height of eight (8) feet.
- D. Provide silt fence around stockpile and immediately stabilize dormant stockpiles within seven (7) days per the specifications as shown on the projects Storm Water Pollution Prevention Plans. Dormant is considered any stockpile not actively used for more than thirty (30) days.

3.8 EXCESS MATERIAL

- A. Dispose of extra or unsuitable topsoil or subsoil material off-site.

3.9 TOLERANCES

- A. Excavations and Embankment work shall be performed and conform to the projects Grading Plan and if available cross sections and profiles. All work shall conform to the tolerances within this section. The Contractor shall understand and satisfy themselves as to the nature and distribution of the materials that they excavate.
- B. The Contractor shall verify their work with templates, slope boards or other approved devices accepted by the industry and to the satisfaction of the Owner and Engineer.
- C. The following are the accepted tolerances that work shall conform to:
 - 1. For cut and fill slopes deviations of ½ inch measured in a horizontal plane will not be permitted and will need corrective actions.
 - 2. Shoulders and ditches, the horizontal measurements from the centerline shall not be less than the plan dimensions, and the elevations thereof shall not be higher than specified but may vary not more than ½ inch below the established grades.
 - 3. Subgrades surface shall in no location vary more than ½-inch from a ten foot straight edge applied to the surface parallel to the centerline of pavement, nor more than ½-inch from subgrade elevation established by construction layout stakes.
 - 4. Finished Grade shall be installed within ½-inch from plan elevation shown on the Grading Plans.

3.10 CLEANING

- A. Once finish grading has occurred leave all areas clean and raked, ready to receive grass seed or landscaping.

END OF SECTION

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SECTION 31 23 33 - TRENCHING AND BACKFILL

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. This section includes the following.
 - 1. Underground utility trench excavation and safety.
 - 2. Backfill materials and placement for underground utilities.
 - 3. Utility identification marking tape and trace wire

1.2 DEFINITIONS

- A. Percent Compaction or Compaction Density: The field density of compacted material, expressed as a percentage of maximum dry density.
- B. Field Dry Density of Field Density: In-place density as determined by ASTM D1556 (Sand Cone Method), ASTM D 2167 (Rubber Balloon Method), or ASTM D 6938 (Nuclear Method).
- C. Maximum Dry Density: Laboratory density as determined by ASTM D698 (Standard Proctor) and occurring at the optimum moisture content of the soil being tested.
- D. Pipe Embedment: Comprised of the following or combination of:
 - 1. Foundation: Required only when the native trench bottom does not provide a firm working platform or the necessary uniform and stable support for the installed pipe.
 - 2. Bedding: The zone between the bottom of trench and the bottom of pipe. Provides a firm, stable and uniform support of the pipe.
 - 3. Haunching: Zone from the bottom of the pipe to the springline of the pipe.
 - 4. Initial Backfill: From the top of the bedding or foundation layer to six (6) inches above the top of pipe, unless otherwise noted on the Construction Document trench details. Also, known as pipe cover.
 - 5. Final Backfill: After the initial backfill or pipe cover to the final surface or the pavement subgrade.
 - 6. Backfill: Both initial and final backfill.

1.3 SUBMITTALS

- A. Provide material for pipe bedding, initial and final backfill including the following:
 - 1. Name of Source
 - 2. Location

3. Date of Sample
4. Sieve Analysis
5. Laboratory Compaction Characteristics

1.4 QUALITY ASSURANCE

- A. The Contractor shall compact all backfill material in accordance with the specifications of the pipe manufacturer.
- B. The Contractor shall provide quality control acceptance field testing services of compacted backfill material, unless otherwise noted. Provide the Owner and Engineer a letter certifying compaction results.

1.5 DELIVERY SOTRAGE AND HANDLING

- A. If the trench detail calls for geotextile fabric it shall be protected from sunlight's ultraviolet rays during transportation and storage. Do not leave geotextile fabric exposed to sunlight's ultraviolet rays for more than five (5) days during installation.
- B. Do not leave PVC piping exposed to sunlight's ultraviolet rays for more than five (5) days during installation, transportation, or storage.

PART 2 - PRODUCTS

2.1 BACKFILL MATERIALS

- A. Trench bedding and Initial Backfill for the following pipes and fittings shall follow the pipe manufactures recommendations, the Trench detail shown on the Construction Documents and the following:
 1. Reinforced Concrete Pipe and Fittings
 - a. Bedding shall consist of coarse interlocking aggregate No. 57, 6, 67, 68, 7, 78, or 8 stone for 60-inch or smaller pipe. For 66-inch or larger diameter pipe No. 4 aggregate may be used.
 - b. Pipe Cover shall consist of compacted ASTM D Class I stone coarse interlocking aggregate No. 57, 6, 67, 7, 78, or 8 stone.
 2. High Density Polyethylene (HDPE) Pipe and Fittings
 - a. Bedding shall consist of coarse interlocking ASTM D2321 Class I aggregate No. 57 stone.
 - b. Pipe Cover shall consist of compacted coarse interlocking ASTM D2321 Class I aggregate No. 57 stone.
 - c.

3. Ductile Iron Pipe and Fittings
 - a. Bedding shall be Select Granular Backfill (Spent core sand or foundry sand is strictly prohibited).
 - b. Pipe Cover shall consist of compacted Select Granular Backfill (Spent core sand or foundry sand is strictly prohibited).
4. Polyvinyl Chloride (PVC) Pipe and Fittings
 - a. Pipe bedding shall be ASTM No. 57 aggregate.
 - b. Pipe cover shall be ASTM No. 57 aggregate.
5. Pavement Underdrain / Curb Drains
 - a. ASTM NO. 57 Aggregate.

B. Final Backfill shall consist of the following:

1. Premium Backfill where trenches fall underneath or within the zone of influence of all pavement, concrete curbs and sidewalks or structures and shall consist of Premium Backfill with gradation conforming to ODOT Section 304. The materials shall be well graded with no particles larger than two (2) inches and having a maximum gradation meeting the limits described in the ODOT OWNERS specifications. The backfill shall be compacted in 6-inch lifts with equipment acceptable to the pipe manufacturer. The following materials are prohibited: Slag, crushed ACBFS, or steel slag.
2. Regular backfill from trench may be used for all areas not under pavement. Suitable material may be Class I, II, III or excavated materials installed in maximum 8" lifts, 93% compacted. No rocks over 1-1/2" are acceptable in upper 8" of backfill.

2.2 EQUIPMENT

- A. Compaction equipment shall be capable of consistently achieving the specified compaction requirements without damaging pipes.

2.3 UTILITY IDENTIFICATION

- A. Tracer Wire: Continuous, single-stranded copper wire, insulated, maximum 10 AWG. Clear plastic covering, imprinted with inscription describing specific utility in large letters.

- B. Detectable Warning Tape: acid-and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, minimum 6 inches wide and 5 mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection. Tape shall be manufactured using a 0.8 mil clear virgin polypropylene film, reverse printed and laminated to a 0.35 mil solid aluminum foil core, and then laminated to a 3.75 mil clear virgin polyethylene film. Tape shall be printed using a diagonally striped design for maximum visibility, and meet the APWA Color-Code standard for identification of buried utilities. Detectable marking tape shall be Pro-Line Safety Products (or approved equal) and made in the USA., detectable by metal detector when tape is buried a maximum of 12" to 18" below grade; colored as follows:

1. APWA Uniform Color Codes

- a. RED - Electric Power Lines, Cables, Conduit, and Lighting Cables.
- b. YELLOW - Gas, Oil, Steam, Petroleum, or Gaseous Material.
- c. ORANGE - Communication, Alarm or Signal Lines, Cables, or Conduit.
- d. BLUE - Potable Water
- e. GREEN - Sewers and Drain Lines (Tape shall indicate storm or sanitary)
- f. WHITE - Proposed Excavation Limits or Route
- g. PINK - Temporary Survey Markings, Unknown / Unidentified Facilities
- h. PURPLE - Reclaimed Water, Irrigation, and Slurry Lines

PART 3 - EXECUTION

3.1 EXAMINATION

- A. When the Contractor trenching operations encounter existing or abandoned underground storage tanks (USTs), the operations shall be temporarily discontinued and notify the OWNER. The OWNER will contact an Environmental [ENGINEER] to determine the disposition thereof and further direction provided.
- B. When the Contractor trenching operations encounter remains of prehistoric people's site or artifacts of historical or archaeological significance, the operations shall be temporarily discontinued and notify the OWNER. The OWNER will contact archeological authorities to determine the disposition thereof and further direction provided.

3.2 PREPARATION

- A. As per Section 31 00 00 EARTH MOVING.

3.3 SAFETY

- A. Trench boxes or sheeting and shoring shall be used for trenches per OSHA specifications.

3.4 PROTECTION OF IN-PLACE CONDITION

- A. As per Section 31 00 00 EARTH MOVING.

3.5 RESTORATION

- A. As per Section 31 00 00 EARTH MOVING.

3.6 TRENCH EXCAVATION

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.
- B. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line, 48" unless noted otherwise by the Contract Documents.
- C. Excavate trenches to uniform widths, in accordance with OSHA guidelines, to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.
- D. Trench bottoms: excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape sub-grade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench sub-grade.
 - 1. For pipes and conduit less than 6 inches in nominal diameter and flat-bottomed, multiple- duct conduit units, hand-excavate trench bottoms and support pipe and conduit on an undisturbed sub-grade.
 - 2. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference.
 - 3. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.
- E. Preserve material below and beyond the line of excavation.
- F. Locate all stockpile excavated trench material at least four (4) feet from edge of excavations and prevent cave-ins or bank slides.
- G. Remove rocks larger than six (6) inches or as required by plan notes, seal if required, and backfill with bedding material.
- H. See Section 31 00 00 EARTH MOVING for additional requirements.

3.7 UNAUTHORIZED EXCAVATION

- A. Contractor is responsible for backfilling unauthorized excavations.
- B. Unauthorized excavations which extend to and expose rock will be sealed with at least six (6) inches of LSM, concrete, or sprayed with bitumen within eight (8) hours of exposure. If sealing is delayed more than eight (8) hours, over excavate at least six (6) inches below the bottom to expose the fresh rock and seal within six (6) hours.

3.8 BACKFILL

- A. Contractor is responsible to obtain all inspections and approvals for trench and pipe installation.
- B. All trenches and excavations shall be backfilled as soon as practical after the pipe has been installed unless other protection of the pipe is directed or shown on the plans.
- C. Coordinate backfilling with utilities testing.
- D. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- E. The backfill around the pipe up to the top of pipe shall be placed in loose layers not exceeding six (6) inches per layer and thoroughly compacted by hand or power tampers approved by the Owner or Engineer. Great care shall be used to obtain thorough compaction under the haunches and along the side of pipes. Over the top of pipe, backfill layers of approximately eight (8) inch depth shall be added with each layer compacted separately and thoroughly until the trench is completely and uniformly filled to a depth of two feet above the top of the pipe.
- F. Backfilling against pipe structures, whose joints involve the use of cement mortar or other concrete, or where buttresses are constructed, shall not be done until mortar has set at least 12 hours.
- G. Compaction over one foot above the pipe shall be done with approved mechanical tampers. Compaction density be per the pipe manufacture specifications.

- H. Backfill materials shall be brought up evenly by depositing the material in layers approximately nine (9) inches in loose depth and without damaging the pipe by shock, jar or excessive free fall. Each layer shall be thoroughly compacted by power tampers operated with care so as to not to damage the underlying pipe or appurtenances. Hand tampers may be used in corners or narrow places inaccessible to power tampers. If compaction is done using hydraulically-operated backhoe mounted compactors with minimum rated impulse force of 6,4000 pounds with a minimum 2,0000 cycles per minute, the backfill material may be deposited in layers not more than two (2) feet in loose depth. Layers in excess of two feet may be deposited only if tests, conducted at the contractor's expense, show, to the satisfaction of the Owner and Engineer that the specified degree of compaction is being achieved. There shall be at least three feet of compacted backfill over the pipe before this method of compaction may be employed.
- I. For all areas not under pavement, sidewalks and curbs the backfill shall be compacted to 90% of the maximum dry density at $\pm 2\%$ of optimum moisture content as determined by tests approved by or conducted by the Owner. Backfill shall be compacted to not less than 95% of the maximum dry density at $\pm 2\%$ of optimum moisture content for areas under pavement, sidewalks and curbs.
- J. Backfill shall be kept completed up to a point within 100 feet of the end of the newly installed pipe unless directed by the Owner and Engineer. During backfill operations, no sheeting or shoring shall be removed without permission from the Owner or Engineer.
- K. Backfill trench to the pavement subgrade or the finished grade less topsoil.
- L. Provide 4 inch thick, concrete-base slab support for piping or conduit less than thirty (30) inches below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway sub-base.
- M. Backfill trenches excavated under footings and within 18 inches of bottom of footings; fill with concrete to elevation of bottom of footings with approval of Engineer.
- N. Place backfill as to not disturb or damage nearby work or facilities.
- O. Maintain all fill materials within two (2) percent of optimum moisture, to attain required compaction density.
- P. Place and compact material in equal continuous layers.
- Q. Maximum compacted depth is six (6) inches for aggregate material and eight (8) inches for soil materials, unless shown differently in the plans.
- R. Fill voids with approved backfill materials while shoring and bracing, and as sheeting is removed.

3.9 COMPACTION

- A. As per Section 31 00 00 EARTH MOVING.

3.10 UTILITY IDENTIFICATION

- A. Install marking tape over all site utilities, twelve (12) inches below finish grade or as shown on the Trench Details in the plans. Install six (6) inches below subgrade under pavements and slabs.
- B. Install tracer wire at top center of parking tape; pull wire taut to remove slack.
- C. Extend tracer wire to utility boxes, manholes, hand holes, and junctions etc. to allow for connection to subsurface location equipment.

3.11 FIELD QUALITY CONTROL AND ASSURANCE

A. General

1. The Contractor shall perform field quality control tests separate from acceptance testing. Contractor test results will not be used by the Owner or Engineer for acceptance.
2. Field density testing for quality assurance shall be done in accordance with ASTM D1556, STM D2167, or ASTM D6938.
3. Compaction tests shall be deemed to comply with specifications when no more than one (1) test of any three (3) consecutive tests performed falls below the specified relative compaction. The one test shall be no more than three (3) percentage points below the specified compaction. The Contractor shall pay for the costs for any retesting or additional work not conforming to these specifications.
4. Where compaction tests indicate a failure to meet the specified compaction, the Contractor shall take additional tests in each direction until the extent of the failing area is identified. Rework the failed area until the specified compaction has been achieved.

B. Compaction

1. Material shall be placed and compacted in layers until the dry density is not less than the percentage of maximum dry density indicated in the table below determined by ASTM D698.

Max Lab Dry Wt. (lbs/ft ³)	Min. Compaction Requirements (% Lab Max.)
90 to 104.9	100
105 to 119.9	98
120 or more	95

4. The Owner or Engineer will evaluate field density test results in relation to maximum dry density as determined by testing the material in accordance with ASTM D698 (Standard Proctor).
5. Location of field density tests shall be determined by the Owner or Engineer.
6. Minimum frequency of the Contractor field density tests shall be as follows:
 - a. Under pavement, sidewalks, curbs, other structures: 1 per lift for every 1,000 lineal feet of trench.
 - b. Not under pavement, sidewalks, curbs, other structures: 1 per alternate lift for every 1,000 lineal feet of trench.
 - c. If requested by the Owner or Engineer the Contractor shall take more frequent tests.

3.12 SHRINKAGE

- A. Backfill trench to a height to allow for the shrinkage or consolidation of the backfill material over time.
- B. If backfill settles over trenches prior to subgrade work install additional backfill to level off areas.

END OF SECTION

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SECTION 31 32 19 – GEOTEXTILE FABRIC

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Work included in this section relates to all geotextile fabric materials, and appurtenances related to installation.

1.2 SUBMITTALS

- A. Submit shop drawings prior to ordering materials for approval.
- B. Shop drawings: include product material information for the following:
 - 1. Geotextile Fabric
 - a. Test results of physical properties.
 - b. Affidavit certifying that the raw and roll material tests results are submitted are accurate and meet the specification requirements.
 - c. Manufacturer's installation instructions.
 - d. Subgrade Stabilization design recommendations by the manufacturer.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. During shipment and storage, wrap the fabric in a heavy-duty protective covering to protect it from UV deterioration, temperature over 140 degrees Fahrenheit, direct sunlight, mud, dirt, dust, and other debris.
- B. Geotextile labeling, shipment and storage shall follow ASTM D 4873.
- C. Handle and store geotextile fabric according to manufacturer's moving and storage instructions.
- D. Handle and unload by hand, or with load carrying straps, a fork lift with stringer bar or axial bar. Fabric shall not be lifted by chains, cables or dropped on ground.

1.4 QUALITY ASSURANCE

- A. Comply with the requirements of authorities having jurisdiction and manufacturer's requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. All manufacturers are subject to compliance with requirements, specifications, and construction details, and must demonstrate compliance through appropriate test and documentation.

2.2 GEOTEXTILE FABRIC

- A. Furnish fabric composed of strong rot-proof polymeric fibers formed into a woven or non-woven fabric. Products must be tested by the National Transportation Product Evaluation Program (NTPEP). The Department will determine acceptance of Type A, B, C and D fabric according to data obtained in the most current NTPEP report - Laboratory Results of Evaluations on Geotextiles and Geosynthetics. The NTPEP testing results must meet or exceed the requirements listed in Table 712.09-1. For all tests except Ultraviolet Exposure, the products Minimum Average Roll Values (MARV), as published in the NTPEP report, must also meet or exceed the requirements listed in the table. If no MARV value is published in the NTPEP report, the manufacturer must submit to the Department certified test data showing the MARV values for the product will meet or exceed the requirements listed in Table 1 below. All minimum strengths shown are in the weakest principal direction.
- B. For Type E material, supply fabric conforming to the requirements of AASHTO M288, Section 10, Table 8. The Owner or Engineer will accept Type E material based on certified test data.
- C. Ensure that the fabric is free of any treatment that might significantly alter its physical properties.

TABLE 1

PROPERTY	TEXT METHOD	REQUIRED VALUES	
Type A: Underdrains and Slope Drains			
Minimum tensile strength	ASTM D 4632	80 lb	355 N
Minimum puncture strength [1]	ASTM D 6241	140 lb	625 N
	or ASTM D 4833	25 lb	110 N
Minimum tear strength	ASTM D 4533	25 lb	110 N
Apparent opening size	ASTM D 4751		
Soil Type-1: Soils with <= 50% passing No. 200 (75 m) sieve		AOS ≤ 0.6 mm	
Soil Type-2: Soils with 50-85% passing No. 200 (75 m) sieve		AOS ≤0.3 mm	
Minimum permittivity	ASTM D 4491	0.5 sec-1	
Type B: Filter Blankets for Rock Channel Protection			
Minimum tensile strength	ASTM D 4632	200 lb	890 N

Minimum elongation	ASTM D 4632	15%	
Minimum puncture strength [1]	ASTM D 6241	440 lb	1955 N
	or ASTM D 4833	80 lb	355 N
Minimum tear strength	ASTM D 4533	50 lb	220 N
Apparent opening size	ASTM D 4751	AOS \leq 0.6 mm	
Minimum permittivity	ASTM D 4491	0.2 sec-1	

Type C: Sediment Fences

Minimum tensile strength	ASTM D 4632	120 lb	535 N
Maximum elongation	ASTM D 4632	50%	
Minimum puncture strength [1]	ASTM D 6241	275 lb	1225 N
	or ASTM D 4833	50 lb	220 N
Minimum tear strength	ASTM D 4533	40 lb	180 N
Apparent opening size	ASTM D 4751	AOS \leq 0.84 mm	
Minimum permittivity	ASTM D 4491	0.01 sec-1	
Ultraviolet exposure strength retention [2]	ASTM D 4355	70%	

Type D: Subgrade-Base Separation or Stabilization

Minimum tensile strength	ASTM D 4632	180 lb	800 N
Maximum elongation	ASTM D 4632	50%	
Minimum puncture strength [1]	ASTM D 6241	385 lb	1715 N
	or ASTM D 4833	70 lb	310 N
Minimum tear strength	ASTM D 4533	70 lb	310 N
Apparent opening size	ASTM D 4751	Same as Type A	
Permittivity	ASTM D 4491	0.05 sec-1	

Type E: Pavement Reinforcement Fabric

AASHTO M 288, Section 9, Table 7

Notes:

1. ASTM D6241 is now the standard puncture resistance test required by AASHTO and NTPEP. NTPEP will continue to publish product data, tested under ASTM D4833, until the product is retested under ASTM D6241.
2. Provide certified test data to the Department. Include strength retention data at 0, 150, 300, and 500 hours

2.3 ENGINEERING GEOGRID MATERIAL

- A. Biaxial polymer grids will be manufactured from 100% polypropylene; such as Tensar BX1200 and/or BX1300 as manufactured by the Tensar Corporation, 1210 Citizens Parkway, Morrow, Georgia 30260 (Phone 1-800-843-8417) or an approved equal

2.4 EROSION CONTROL BLANKETS

- A. Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long. Install in detention basin per manufactures recommendations.

2.5 Erosion-Control Fiber Mesh:

- A. Biodegradable twisted jute or spun-coir mesh, a minimum of 0.92 lb. /sq. Yd., with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches long. Install on slopes greater that 1 Vertical to 3 Horizontal or areas subject to erosion in order to stabilize site.

PART 3 - EXECUTION

3.1 GEOTEXTILE FABRIC CONSTRUCTION METHOD

- A. When specified, place the geotextile fabric at the bottom of the cut or at locations designated in the construction plans and as directed by the Owner or Engineer.
- B. Place the geotextile fabric smooth and free of tension or wrinkles.
- C. Fold or cut the geotextile fabric to conform to curves.
- D. Overlap a minimum of 18 inches at the ends and sides.
- E. Hold the fabric in place with pins or staples.
- F. Place the suitable material on the fabric and do not operate the equipment directly on the fabric.
- G. Unless stated otherwise, spread the suitable material and maintain a minimum lift thickness of 12 inches.

3.2 ENGINEERING GEOGRID CONSTRUCTION

- A. Geogrid shall be laid at the proper elevation and alignment as shown on the plans and shall be oriented such that the roll length runs parallel to the trench.
- B. Geogrid sections shall be overlapped as shown in the plans or as directed by the CMT. Minimum overlap in horizontal plane shall be three feet. In vertical plane the minimum overlap shall be nine inches. Care shall be taken to ensure that geogrid sections do not separate at overlaps during construction. Placement of geogrid around curves or corners will require cutting of geogrid product and diagonal overlapping of same to ensure that excessive buckling of grid material does not occur.

- C. Specified granular fill material shall be placed in lift thicknesses and compacted as indicated on the plans and in accordance with Item 203 Aggregate Refill for subbase application and Section 312300, Excavation and Fill, for slag or limestone for trenches. Care shall be taken to assure that the geogrid is held in desired position during and after placement of granular fill.
- D. No construction equipment shall operate directly upon the geogrid. A minimum fill thickness of six inches is required prior to operation of any vehicles over the geogrid. Sudden braking or sharp turning shall be avoided while operating any equipment on reinforced fill.

END OF SECTION

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SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Work included in this section pertains to all materials, equipment, finishing methods, installation etc. that relate to rigid paving.
- B. This section includes exterior cement concrete pavement for the following:
 - 1. Driveways and Service Yard
 - 2. Walkways

1.2 DEFINITIONS

- A. Cementitious materials: Portland cement alone or in combination with one or more of the following blended hydraulic cement, expansive hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, silica fume, and air cooled blast furnace slag.

1.3 SUBMITTALS

- A. Product data for each type of manufactured material and product indicated:
- B. Design mixes: for each concrete pavement mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Material test reports: from a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated, based on comprehensive testing of current materials:
 - 1. ODOT Section 499 Concrete General
 - 2. ASTM C 33 – Standard Specification for Fine and Concrete Aggregate
 - 3. ASTM C 39 – Compressive Strength of Cylindrical Concrete Specimens
 - 4. ASTM C 94 – Ready Mix Concrete
 - 5. ASTM C 873 – Compressive Strength of Concrete Cylinders Cast in Place in Cylindrical Molds
- D. Material certificates: signed by manufacturers certifying that each of the following materials complies with requirements:
 - 1. Cementitious materials and aggregates.
 - 2. Steel reinforcement and reinforcement accessories.
 - 3. Admixtures.
 - 4. Curing compounds.
 - 5. Joint fillers.

1.4 QUALITY ASSURANCE

- A. Installer qualifications: an experienced installer who has completed pavement work similar in material, design, and extent to that indicated for this project and whose work has resulted in construction with a record of successful in-service performance.
- B. Manufacturer qualifications: manufacturer of ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
 - 1. Manufacturer must be certified according to the national ready mix concrete association's plant certification program.
- C. Testing agency qualifications: an independent testing agency, acceptable to the OWNER, qualified according to ASTM C 1077 and ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.
- D. Source limitations: obtain each type or class of cementitious material of the same brand from the same manufacturer's plant and each aggregate from one source.
- E. ACI publications: comply with ACI 301, "Specification for Structural Concrete," unless modified by the requirements of the Contract Documents.
- F. Concrete testing service: The OWNER will engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixes.

1.5 PROJECT CONDITIONS

- A. Traffic control: maintain access for vehicular and pedestrian traffic as required by Owner and Engineer for other construction activities.
- B. Don't not place pavement when base surface or ambient temperature is less than 40 deg F, or base is wet or frozen.

PART 2 - PRODUCTS

2.1 FORMS

- A. Form materials: plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces.
 - 1. Use flexible or curved forms for curves of a radius 100 feet or less.

- B. Form-release agent: commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.2 STEEL REINFORCEMENT

- A. Plain-steel welded wire fabric: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.
- B. Deformed-steel welded wire fabric: ASTM A 497, flat sheet.
- C. Epoxy-coated welded wire fabric: ASTM A 884/A 884M, class A coated, plain steel.
- D. Reinforcement bars: ASTM A 615/A 615M, grade 60, deformed (carbon steel bars).
- E. Epoxy-coated reinforcement bars: ASTM A 775/A 775M; with ASTM A 615/a 615M, grade 60, deformed bars.
- F. Steel bar mats: ASTM A 184/A 184M; with ASTM A 615/A 615M, grade 60, deformed bars; assembled with clips.
- G. Plain steel wire: ASTM A 1064/A 1064M-16b, as drawn.
- H. Joint dowel bars: plain steel bars, ASTM A 615/A 615M, grade 60. Cut bars true to length with ends square and free of burrs.
- I. Epoxy-coated joint dowel bars: ASTM A 775/A 775M; with ASTM A 615/A 615M, grade 60, plain steel bars.
- J. Tie bars: ASTM A 615/a 615M, grade 60, deformed.
- K. Bar supports: bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcement bars, welded wire fabric, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:
 - 1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
 - 2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer coated wire bar supports and chairs adequate to support weight of concrete, installers, and prevent displacement or misalignment.
- L. Epoxy repair coating: liquid two-part epoxy repair coating, compatible with epoxy coating on reinforcement.

2.3 CONCRETE MATERIALS

- A. General: use the same brand and type of cementitious material from the same manufacturer and supplier throughout the project.
- B. Portland cement: ASTM C 150, type I OR II.
 - 1. Type I is restricted to fresh water and low sulfate soil areas
 - 2. Type II is to be used in high sulfate areas and areas subject to high salt concentrations, typically associated with salt water areas and pavement subject to use of deicing salts.
 - 3. Fly ash: ASTM C 618, class F or C.
- C. Aggregate: ASTM C 33, uniformly graded, from a single source, with coarse aggregate as follows:
 - 1. Class Designation: 4S, 4M, or 1N (pavement, walks etc., severe weathering regions).
 - 2. Maximum aggregate size: 3/4 inch nominal.
 - 3. Do not use fine or coarse aggregates containing substances that cause spalling.
- D. Water: ASTM C 94.

2.4 ADMIXTURES

- A. General: admixtures certified by manufacturer to contain not more than 0.1 percent water- soluble chloride ions by mass of cement and to be compatible with other admixtures.
- B. Air-entraining admixture: ASTM C 260.
- C. Chemical Admixtures for concrete (with Engineer approval):
 - 1. Water-reducing admixture: ASTM C 494, type A.
 - 2. Water-reducing and retarding admixture: ASTM C 494, type D
 - 3. Water-reducing and accelerating admixture: ASTM C 494, type E.
 - 4. Water-reducing High-range, admixture: ASTM C 494, type F.

2.5 CURING MATERIALS

- A. Absorptive cover: AASHTO M 182, class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sy. Dry.
- B. Moisture-retaining cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: potable.
- D. Evaporation retarder: waterborne, monomolecular film forming, manufactured for application to fresh concrete.

- E. Clear solvent-borne liquid-membrane-forming curing compound: ASTM C 309, type 1, class b.
- F. Clear waterborne membrane-forming curing compound: ASTM C 309, type 1, class b.
- G. White waterborne membrane-forming curing compound: ASTM C 309, type 2, class b.
- H. Products: subject to compliance with requirements, provide one of the following (or approved equal):
 - 1. Evaporation Retarder (or approved equal):
 - a. Finishing Aid Concentrate; Burke Group, LLC.
 - b. Sure Film; Dayton Superior Corporation.
 - c. Eucobar; Euclid Chemical Co.
 - d. Confilm; Master Builders, Inc.
 - 2. Clear Solvent-Borne Liquid-Membrane-Forming Curing Compound (or approved equal):
 - a. Res-X Cure All Resin; Burke Group, LLC.
 - b. Day-Chem Rez Cure; Dayton Superior Corporation.
 - c. Kurez DR; Euclid Chemical Co.
 - d. 3100-Clear; W. R. Meadows, Inc.
 - 3. Clear Waterborne Membrane-Forming Curing Compound (or approved equal):
 - a. Aqua Resin Cure; Burke Group, LLC.
 - b. Day Chem Rez Cure (J-11-W); Dayton Superior Corporation.
 - c. 1100 Clear; W. R. Meadows, Inc.
 - 4. White Waterborne Membrane-Forming Curing Compound (or approved equal):
 - a. Aqua Resin Cure; Burke Group, LLC.
 - b. 1200-White; W. R. Meadows, Inc.

2.6 RELATED MATERIALS

- A. Expansion-and isolation-joint-filler strips: ASTM D 1751, asphalt-saturated cellulosic fiber.
- B. Closed cell foam specifically manufactured for expansion joints.
- C. Wheel stops: precast, air-entrained concrete; 4,000-psi minimum compressive strength. Provide chamfered corners and drainage slots on underside, and provide holes for dowel-anchoring to substrate.
 - 1. Dowels: galvanized steel, epoxy coated, diameter of 3/4 inch, minimum length.

- D. Slip-resistive aggregate finish: factory-graded, packaged, rustproof, non-glazing, abrasive aggregate of fused aluminum-oxide granules or crushed emery with emery aggregate containing not less than 50 percent aluminum oxide and not less than 25 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.
- E. Bonding agent: ASTM C 1059, type ii, non-redispersible, acrylic emulsion or styrene butadiene.
- F. Epoxy bonding adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class and grade to suit requirements, and as follows:
 - 1. Types I and II, non-load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
 - 2. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

2.7 CONCRETE MIXES

- A. Prepare design mixes, proportioned according to ACI 211.1 and ACI 301, for each type and strength of normal-weight concrete determined by either laboratory trial mixes or field experience.
- B. Use a qualified independent testing agency for preparing and reporting proposed mix designs for the trial batch method.
 - 1. Do not use Owner's field quality-control testing agency as the independent testing agency.
- C. Proportion mixes to provide concrete with the following properties:
 - 1. Compressive strength (28 days): 4000 psi, unless noted otherwise.
 - 2. Flexural strength (28 days); 650 psi.
 - 3. Maximum water-cementitious materials ratio: 0.45.
 - 4. Slump limit: 4 inches.
 - a. Slump limit for concrete containing high-range water-reducing admixture: not more than 8 inches after adding admixture to plant, or site-verified, 3-inch slump.
- D. Cementitious materials: limit percentage, by weight, of cementitious materials other than Portland cement according to ACI 301 requirements for concrete exposed to deicing chemicals.
- E. Cementitious materials: Limit percentage, by weight, of cementitious materials other than Portland cement in concrete as follows:
 - 1. Fly Ash: 0%
 - 2. Ground Granulated Blast-Furnace Slag (GGBFS): 0%
 - 3. Micro-Silica: 0%

- 4. When using multiple pozzolans materials, do not exceed the individual maximum contents above for each material. A combination of pozzolans materials may not exceed 50% of the total cementitious content by weight.
- F. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content as follows, within a tolerance of plus or minus 1.5 percent:
 - 1. Air content: 5.5 percent for 3/4-inch maximum aggregate.
- G. Coloring agent: add coloring agent to mix according to manufacturer's written instructions.

2.8 CONCRETE MIXING

- A. Ready-mixed concrete: comply with manufacturers' requirements and with ASTM C 94.
- B. Ready-mixed concrete: comply with manufacturers' requirements and with ASTM C 94 and ASTM C 1116.
 - 1. When air temperature is between 85 deg f and 90 deg f, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg f, reduce mixing and delivery time to 60 minutes.
- C. Project-site mixing: comply with requirements and measure, batch, and mix concrete materials and concrete according to ASTM C 94. Mix concrete materials in appropriate drum-type batch machine mixer.
 - 1. For mixers of 1 C.Y. or smaller capacity, continue mixing at least one and one-half minutes, but not more than five minutes after ingredients are in mixer, before any part of batch is released.
 - 2. For mixers of capacity larger than 1 C.Y., increase mixing time by 15 seconds for each additional 1 C.Y.
 - 3. Provide batch ticket for each batch discharged and used in the work, indicating Project identification name and number, date, mix type, mix time, quantity, and amount of water added.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Proof-roll prepared sub-base surface with tandem 20 C.Y. dump truck with rock, to check for unstable areas and verify need for additional compaction. Proceed with pavement only after nonconforming conditions have been corrected and sub-grade is ready to receive pavement.
- B. Owners' representative(s) must be present at time of proof-rolling for proof-roll to be acceptable to Owner/Engineer.

- C. Remove loose material from compacted sub-base surface immediately before placing any concrete.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form release agent to ensure separation from concrete without damage or discoloration.

3.3 STEEL REINFORCEMENT

- A. General: comply with CRSIs "Manual of Standard Practice" for fabricating reinforcement and with recommendations in CRSIs "Placing Reinforcing Bars" for placing and supporting reinforcement.
 - 1. Apply epoxy repair coating to uncoated or damaged surfaces of epoxy-coated reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement at all times.
- D. Install welded wire fabric. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
- E. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities, or replace units as required before placement. Set mats for a minimum 2-inch overlap to adjacent mats.

3.4 JOINTS

- A. General: construct construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.
 - 1. When joining existing pavement, place transverse joints to align with previously placed joints, unless otherwise indicated.

- B. Construction joints: set construction joints at side and end terminations of pavement, and at locations where pavement operations are stopped for more than one-half hour, unless pavement terminates at isolation joints.
 - 1. Provide preformed galvanized steel or plastic keyway-section forms or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1-1/2 inches into concrete.
 - 2. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of pavement strips, unless otherwise indicated.
 - 3. Provide tie bars at sides of pavement strips where indicated.
 - 4. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 - 5. Use epoxy bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Isolation / Expansion joints: form joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.
 - 1. Locate isolation and expansion joints adjacent to structures and fixed anchorage points.
 - 2. Extend joint fillers full width and depth of joint.
 - 3. Terminate joint filler less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
 - 4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
 - 5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
 - 6. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- D. Contraction joints: form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:
 - 1. Grooved joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with groover tool to the following radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.
 - a. Radius: 1/4 inch.
 - 2. Sawed joints: form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.
- E. Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint.

- F. Edging: tool edges of slabs, gutters, and curbs in concrete after initial floating with an edging tool to the following radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.
 - 1. Radius: 1/4 inch.
- G. Saws: Use diamond blade saws equipped with cutting guides, blade guards, water cooling systems, dust control, and cut depth control. Early entry saws require approval of Engineer.

3.5 CONCRETE PLACEMENT

- A. Inspection: before placing concrete, inspect and complete formwork installation, reinforcement steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.
- B. Remove snow, ice, or frost from sub-base surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.
- C. Moisten sub-base to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are at the required finish elevation and alignment. Box out around MH frame and grates. Install expansion joints.
- D. Comply with requirements and with recommendations in ACI 304R for Measuring, Mixing, Transporting, and Placing Concrete.
- E. Do not add water to concrete during delivery, at project site, or during placement.
- F. Deposit and spread concrete in a continuous operation between pre-determined transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place. Cold Joints are not acceptable.
- G. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures to consolidate concrete according to recommendations in ACI 309R, "Guide for Consolidation of Concrete".
 - 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.
- H. In lieu of properly supporting wwf on chairs (300# man) CONTRACTOR may place concrete in two operations; strike off initial pour for entire width of placement and to the required depth below finish surface. Lay welded wire fabric or fabricated bar mats immediately in final position. Place top layer of concrete, strike off, and screed.

1. Remove and replace portions of bottom layer of concrete that have been placed more than 15 minutes without being covered by top layer, or use bonding agent if approved by Engineer.
- I. Screed pavement surfaces with a straightedge and strike off. Commence initial floating using bull floats or darbies to form an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading dry-shake surface treatments.
- J. Curbs and gutters:
 1. When automatic machine placement is used for curb and gutter placement, submit revised mix design and laboratory test results that meet or exceed requirements to the Engineer. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing as specified for formed concrete. If results are not approved, remove and replace with formed concrete.
 2. Curbs: all curbs shall match called out curbing on Contract Documents. Cast-in-place concrete shall be used unless other design is required to match existing conditions. Concrete shall be Class C. Slump shall be a maximum of 4 inches and minimum 28-day strength shall be 4000 psi with 6 to 8 percent entrained air. Max w/c ratio 0.45
 - a. Expansion joints shall be specified and shall be shown on the drawings. Color of the joint sealer shall match that of the concrete.
 - b. Four inch under drains in porous backfill shall be installed under all combination curbs and gutters. Under drains shall extend to the nearest feasible drainage basins. Combination curb and gutter may be used only to match or repair existing work.
- K. Walks: For commercial projects thickness shall be 8 inches over 4 inches of compacted no. 304 limestone gravel base unless directed otherwise by the Engineer. The concrete shall have tooled edges which are then disguised by a light/medium broom finish. Except where required for structural purposes, reinforcing bars or welded wire fabric should be omitted unless otherwise specified by the Contract Documents. For conventional concrete walks, use Class C concrete with clean natural sand, limestone aggregate, and 6 to 7 percent entrained air.
 1. Curing compounds: specify only non-staining type. It has been found that clear chlorinated rubber compounds cause staining which cannot be removed.
- L. Curb ramps for persons with disabilities: see the ADAAG 4.7.
 1. Companion ramps: state laws require that when a curb ramp is built on one side of a street, a companion ramp is required on the opposite side of the street. When project limits would normally end within a street intersection, the limits must be extended to allow construction of a companion ramp on the far side of the intersection. For projects in which federal funding is involved, this requirement must carefully be coordinated with federal requirements regarding limits of federal participation.

- M. Slip-form pavers: when automatic machine placement is used for pavement, submit revised mix design and laboratory test results that meet or exceed requirements to the Engineer. Produce pavement to required thickness, lines, grades, finish, and jointing as required for formed pavement.
 - 1. Compact sub-base and prepare sub-grade of sufficient width to prevent displacement of paver machine during operations.
- N. When adjoining pavement lanes are placed in separate pours, do not operate equipment on concrete until pavement has attained 75 percent of its 28-day compressive strength.
- O. Cold-weather placement: comply with ACI 306R-16 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.
- P. Hot-weather placement: place concrete according to recommendations in ACI 305R-10 and as follows when hot-weather conditions exist:
 - 1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 deg F. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water.
 - 2. Cover reinforcement steel with water-soaked burlap so steel temperature will not exceed ambient air temperature remove before embedding in concrete.
 - 3. Fog-spray forms, reinforcement steel, and sub-grade just before placing concrete. Keep sub-grade moisture uniform without standing water, soft spots, or dry areas.
- Q. Concrete paving:
 - 1. Metal nosings on exterior stairs are prohibited.
 - 2. Stairs, rails and cheek walls, slopes to drain. Any stairs should be kept to a minimum. Ramps are to be used whenever possible within ADAAG Guidelines.
 - 3. All sidewalks, stairs and ramps must withstand vehicular loading.
 - 4. Where not noted on drawings, curbs to match adjacent 6 inch x 18 inch curb or verify with Engineer.
 - 5. Use concrete for walkways, drives, service courts, parking areas, dumpster pads, compactor pads, loading dock ramps, aprons, and bus pull offs. All items shall be designed for particular items and be verified by the Engineer.

6. Radiused intersections shall be poured monolithic and should extend to the outer limits of the curves. Segmented curves are prohibited.
7. Cross slope of all walks shall be 1/4 inch per foot (max.) and 1/8 inch per foot.
8. Walks abutting buildings shall bear on the foundation or be dowelled.
9. The full width of sidewalks adjacent to curbs shall be 1/4 inch above the curb.
10. Temperature steel in stair nosings must have a minimum of 1-1/2" of concrete cover.
11. [CONTRACTORS] are required to wet sub-base prior to placing the concrete.
12. Curbs shall be poured concrete with #5 top and bottom reinforcing and without gutters. Provide contraction joints at 15 ft. max intervals. Filler strips must be specified.
 - a. Dropped curbs for drive and handicapped access shall be formed for all new work.
 - b. Remove existing curb back to nearest existing joint when new curbs extend into existing curb lines.
 - c. Paving base should extend a minimum of 6 inches beyond the edge of the surface if curbs are not provided.
13. Combined fire service/sidewalks shall be designed to accommodate Fire Department's largest vehicles' (minimum 12 ft. wide) turning radius and provisions for outrigger support.

3.6 CONCRETE FINISHING

- A. General: wetting of concrete surfaces during screeding, initial floating, or finishing operations is prohibited.
- B. Float finish: begin the second floating operation when bleed-water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surface with power- driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots, and fill low spots. Re-float surface immediately to uniform granular texture.
- C. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float- finished concrete surface 1/16 to 1/8 inch deep with a stiff-bristled broom, perpendicular to line of traffic.
- D. Finishes:
 1. Vehicle Paving: Heavy broom.
 2. Sidewalk: Light broom.
 3. Gutters and Curbs: Light broom.
 4. Pedestrian Ramps: Medium broom perpendicular to slope.

3.7 CONCRETE PROTECTION AND CURING

- A. General: protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1-90 for cold-weather protection and follow recommendations in ACI 305.1-6 for hot-weather protection during curing.
- B. Evaporation retarder: apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb. /S.F. before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Begin curing after finishing concrete, but not before free water has disappeared from concrete surface.
- D. Curing methods: cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's requirements. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.8 PAVEMENT TOLERANCES

- A. Comply with tolerances of ACI 117 and as follows:
 - 1. Elevation: 1/4 inch.
 - 2. Thickness: Plus 3/8 inch, minus 1/4 inch.
 - 3. Surface: Gap below 10-foot long, unleveled straightedge not to exceed 1/4 inch.
 - 4. Lateral Alignment and Spacing of Tie Bars and Dowels: 1 inch.
 - 5. Vertical Alignment of Tie Bars and Dowels: 1/4 inch.
 - 6. Alignment of Tie-Bar End Relative to Line Perpendicular to Pavement Edge: 1/2 inch.
 - 7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Pavement Edge: Length of dowel 1/4 inch per 12 inches.

8. Joint Spacing: 3 inches.
9. Contraction Joint Depth: Plus 1/4 inch, no minus.
10. Joint Width: Plus 1/8 inch, no minus.

3.9 WHEEL STOPS

- A. If shown on plans, securely attach wheel stops into pavement with not less than two galvanized steel, epoxy coated dowels embedded in holes cast into wheel stops. Firmly bond each dowel to wheel stop and to pavement. Extend upper portion of dowel 5 inches into wheel stop and lower portion a minimum of 18 inches into pavement.

3.10 FIELD QUALITY CONTROL

- A. Testing agency: Inspect and test concrete materials, perform tests, and submit test reports during concrete placement. Sampling and testing for quality control may include those specified in this section.
- B. Testing Services: Testing shall be performed according to the following requirements:
 1. Sampling Fresh Concrete: Representative samples of fresh concrete shall be obtained according to ASTM C 172, except modified for slump to comply with ASTM C 94.
 2. Slump: ASTM C 143; one test at point of placement for each compressive-strength test, but not less than one test for each day's pour of each type of concrete and every 50 yds. Additional test will be required when concrete consistency changes.
 3. Air Content: ASTM C 231, pressure method; one test for each compressive-strength test, but not less than one test for each day's pour of each type of air-entrained concrete.
 4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each set of compressive- strength specimens.
 5. Compression Test Specimens: ASTM C 31/C 31M; one set of four standard cylinders for each compressive-strength test, unless otherwise indicated. Cylinders shall be molded and stored for laboratory-cured test specimens unless field-cured test specimens are required.
 6. Compressive-Strength Tests: ASTM C 39; one set for each day's pour of each concrete class exceeding 5 C.Y., but less than 25 C.Y., plus one set for each additional 50 C.Y. One specimen shall be tested at 7 days and two specimens at 28 days; one specimen shall be retained in reserve for later testing if required.
 7. When frequency of testing will provide fewer than five compressive-strength tests for a given class of concrete, testing shall be conducted from at least five randomly selected batches, or from each batch if fewer than five are used.

8. When total quantity of a given class of concrete is less than 50 C.Y., Engineer may waive compressive-strength testing if adequate evidence of satisfactory strength is provided.
 - a. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, current operations shall be evaluated and corrective procedures shall be provided for protecting and curing in-place concrete.
 - b. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive compressive-strength test results equal or exceed specified compressive strength and no individual compressive-strength test result falls below specified compressive strength by more than 500 psi.
 - C. Test results shall be reported in writing to Owner/Engineer, concrete manufacturer, and contractor within 24 hours of testing. Reports of compressive-strength tests shall contain project identification name and number, date of concrete placement, name of concrete testing agency, concrete type and class, location of concrete batch in pavement, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-and 28-day tests.
 - D. Nondestructive testing: impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer and Owner but will not be used as the sole basis for approval or rejection.
 - E. Additional tests: testing agency shall make additional tests of the concrete when test results indicate slump, air entrainment, concrete strengths, or other requirements have not been met, as directed by Engineer. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.
- 3.11 REPAIRS AND PROTECTION
- A. Remove and replace concrete pavement that is broken, damaged, or defective, or does not meet requirements in this section with characteristics exceeding those specified in this specification.
 - B. Drill test cores where directed by Owner/Engineer when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with Portland cement concrete bonded to pavement with epoxy adhesive.
 - C. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.

- D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for substantial completion inspections.
- E. Refer to Storm Water Pollution Prevention Plan (SWPPP) for additional information re washout area(s).

END OF SECTION 321313

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SECTION 329200 – TURFS AND LAWNS

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Provide seeded lawns as shown on the construction documents and specified.
 - 1. Soil preparation
 - 2. Seeding lawns
 - 3. Mulching
 - 4. Maintenance

1.2 SUBMITTALS

- A. Submit seed vendor's certification for required grass seed mixture, indicating percentage by weight, and percentages of purity, germination, and weed seed for each grass species.
- B. Submit the following materials certification:
 - 1. Fertilizer(s) analysis
 - 2. Tackifier
 - 3. Asphaltic emulsion
 - 4. Seed
- C. Submit materials test report

1.3 QUALITY ASSURANCE

- A. Pre-installation conference: Conduct conference at project site
- B. Provide and pay for materials testing. Testing agency shall be acceptable to the Engineer. Provide the following data:
 - 1. Test representative material samples proposed for use.
 - 2. Topsoil
 - a. pH factor
 - b. Mechanical analysis

c. Percentage of organic content

d. Recommendations on type and quantity of additives required to establish satisfactory pH factor and supply of nutrients to bring nutrients to satisfactory level for planting.

1.4 PROJECT CONDITIONS

- A. Work Notification: Notify Owner at least 14 days prior to start of seeding operations.
- B. Protect existing utilities, paving, and other facilities from damage caused by seeding operations.
- C. Perform seeding work only after planting and other work affecting ground surface has been completed.
- D. Restrict traffic from lawn areas until grass is established. Erect signs and barriers as required.
- E. Provide hose and lawn watering equipment as required.
- F. When watering spigots are not available, the Contractor shall supply water from a water tank truck which he shall furnish. Permits shall be taken out in each municipality for use of the fire hydrants as required.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver seed and fertilizer materials in original unopened containers, showing weight, analysis, and name of manufacturer. Store in a manner to prevent wetting and deterioration.

1.6 WARRANTY

- A. The contractor is responsible to provide a full uniform lawn as approved by the owner. The contractor shall provide a warranty of one full growing season after the first full year of grass establishment. The contractor shall reseed areas with specified materials which fail to provide a uniform stand of grass until all affected areas are accepted by the Owner and Engineer of Record.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Lawn Seed: Fresh, clean, and new crop seed mixture.
 - 1. Mixed by an approved method.
 - 2. Seed with the following mixture:

Temporary Seeding:

Seeding Dates

	Species	lb/1,000sf	lb/ Per Acre
March 1 to August 15	Oats	3	128(4 bushel)
	Tall Fescue	1	40 lbs
	Annual Ryegrass	1	40lbs
	Perennial Ryegrass	1	40 lbs
	Tall Fescue	1	40 lbs
	Annual Ryegrass	1	40 lbs
	Annual Ryegrass	1.25	55 lbs
	Perennial Ryegrass	3.25	142 lbs
	Creeping Red Fescue	0.4	17 lbs
	Kentucky Bluegrass	0.4	17 lbs
August 16 to November 1	Rye	3	112 (2 bushel)
	Tall Fescue	1	40 lbs
	Annual Ryegrass	1	40 lbs
	Wheat	3	120 (2 bushel)
	Tall Fescue	1	40 lbs
	Annual Ryegrass	1	40 lbs
	Perennial Ryegrass	1	40 lbs
	Tall fescue	1	40 lbs
	Annual Ryegrass	1	40 lbs
	Annual Ryegrass	1.25	40 lbs
	Perennial Ryegrass	3.25	40 lbs
	Creeping Red Fescue	0.4	40 lbs
	Kentucky Bluegrass	0.4	0 lbs
	Use Mulch or Dormant Seeding Only		
November 1 to February 29	Use Mulch or Dormant Seeding Only		

Permanent Seeding:

Normal seeding times are as follows:

March 15 to June 10
August 15 to October 1

Common Name	Percentage by Weight (Minimum)	Percentage by Purity (Minimum)	Percentage Germination (Maximum)	Percentage Weed Seed
Kentucky Bluegrass	80%-90%	90%	85%	0.5%
Perennial Ryegrass	10%-20%	90%	88%	0.5%

B. Fertilizer

1. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 - a. Type A composition: Starter fertilizer containing 18% nitrogen, 24% phosphoric acid, and 6% potash by weight (18-24-6), or similar approved composition.
 - b. Type B composition: Top dressing fertilizer containing 31% nitrogen, 3% phosphoric acid, and 10% potash by weight (31-3-10), or similar approved composition.

C. Mulches

1. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
2. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plantgrowth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
3. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.
4. Asphalt Emulsion: ASTM D 977, Grade SS-1; nontoxic and free of plant-growth or germination inhibitors.

D. Tackifier: Liquid concentrate diluted with water forming a transparent 3-dimensional film-like crust permeable to water and air and containing no agents toxic to seed germination.

E. Asphaltic Emulsion Binder: Refined petroleum asphalt emulsified in alkaline water without use of clay, starch, or emulsified in alkaline water without use of clay, starch, or like deleterious substances, and not more than 0.75% of saponifiable acids, of a fluid consistency with no petroleum solvents or other diluting agents toxic to seed germination.

F. Water: Potable. Hoses or other methods of transportation furnished by Contractor. Contractor to pay for and supply all water.

G. Ground Limestone: Containing not less than 85% of total carbonates and ground to such fineness that 50% will pass through a 100-mesh sieve and 90% will pass through a 20-mesh sieve.

H. Inoculating Bacteria

- a. The inoculant for treating leguminous seeds shall be a pure culture of nitrogen-fixing bacterial selected for maximum vitality, not more than one-year old. All cultures shall be subjected to the approval of the Engineer.

PART 3 – EXECUTION

3.1 INSPECTION

- A. Examine finish surfaces, grades, topsoil quality, and depth. Do not start seeding work until unsatisfactory conditions are corrected.

3.2 PREPARATION

- A. Limit preparation to areas which will be immediately seeded.
- B. Loosen topsoil of lawn areas to minimum depth of 4". Remove stones over 1" in any dimension and sticks, roots, rubbish, and extraneous matter.
- C. Grade lawn areas to a smooth, free-draining even surface with a loose, moderately coarse texture. Roll and rake. remove ridges, and fill depressions as required to drain.
- D. Apply Type A fertilizer to indicated turf areas at a rate equal to 1.0 lb. of actual nitrogen per 1,000 sq. ft. (220 lbs./acre).
- E. Restore prepared areas to specified condition if eroded, settled, or otherwise disturbed after fine grading and prior to seeding.

3.3 INSTALLATION

A. Lawn Seeding

2. Seed immediately after preparation of bed. Seed only between April 1 and June 1 and between August 15 and October 15, or at such other times acceptable to the Engineer.
3. Seed indicated areas within contract limits and areas adjoining contract limits disturbed as a result of construction operations.
4. Sow grass seed at a rate of 8.0 lbs. per 1,000 sq. ft.
5. After seeding, rake or drag surface of soil lightly to incorporate seed into top 1/8" of soil. Roll with light lawn roller.
 - a. Type A Fertilizer: 1 lb. per 1,000 square feet or 220 lbs./acre.
 - b. Tackifier: 60 gals./acre.

- c. Limestone: Rate determined by soil test.

B. Mulching

- 1. Place straw mulch on seeded areas within 24 hours after seeding.
 - 2. Place straw mulch uniformly in a continuous blanket at the rate of 2 1/2 tons per acre, or 50-90 lb. per 1,000 sq. ft. of area (2-3 bales). A mechanical blower may be used for straw mulch application when acceptable to the Owner.
- C. Provide straw bale checking in ditches or problem swales at intervals required to adequately slow water velocity and impede soil loss.

3.4 HYDROSEEDING

- A. Hydroseeding: Mix specified seed and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
- 1. Mix slurry with tackifier.
 - 2. Spray-apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500-lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate shown in the previous paragraphs above.
 - 3. Spray-apply slurry uniformly to all areas to be seeded in a two-step process. Apply first slurry coat at a rate so that mulch component is deposited at not less than the rates, dry weight, and seed component is deposited at not less than the specified seed-sowing rate shown in the previous paragraphs above. Apply slurry cover coat of fiber mulch (hydromulching) at not less than the 2,000 lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate shown in the previous paragraphs above.

3.5 MAINTENANCE

- A. The Contractor shall be responsible for continued proper care of the lawn areas one full growing season after final acceptance of the site. The period of maintenance for seeding and sodding shall extend for as long as necessary to establish over the entire lawn areas a uniformly close stand of grasses, free of weeds and undesirable grasses or 12 months after final completion, whichever comes first. A uniformly close stand of grass is defined as bare spots no larger than 6" diameter that constitute less than 2% of the entire lawn. Upon written acceptance of lawn area by the Engineer, the Owner will assume maintenance responsibility.
- B. Maintain seeded lawn areas, including watering, spot weeding, mowing, applications of herbicides, fungicides, insecticides, and re-seeding until a full, uniform stand of grass free of weeds, undesirable grass species, disease, and insects is achieved and accepted by the Owner in behalf of the Engineer.

1. Water daily to maintain adequate surface soil moisture for proper seed germination. Continue daily watering for not less than 30 days. Thereafter, apply 1/2" of water twice weekly until acceptance.
 2. Repair, rework, and re-seed all areas that have washed out, are eroded, or do not catch.
 3. Mow lawn areas as soon as lawn top growth reaches a 3-3/4" height. Cut back to 2 1/2" in height. Repeat mowing as required to maintain specified height. A minimum of three months of mowings will be required for acceptance.
- C. Maintain seeded banks, ditches, medians, and fields to the extent of establishment only. Re-grade and re-seed washed out or eroded areas as required until a suitable cover is established.

3.6 ACCEPTANCE

- A. Seeded areas will be inspected at completion of installation and accepted subject to compliance with specified materials and installation requirements.
1. Seeded areas will be acceptable provided all requirements, including maintenance, have been complied with, and a healthy, uniform, close stand of the specified grass is established free of weeds, undesirable grass species, disease, and insects.
 2. No individual lawn areas shall have bare spots or unacceptable cover totaling more than 2% of the individual areas, in areas requested to be inspected. Bare spots does not exceed an area of 5-inch x 5-inch.
- B. Upon final acceptance, the Owner will assume lawn maintenance.

3.7 CLEANING

- A. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, debris, and equipment. Repair damage resulting from seeding operations.
- B. During work, keep premises neat and orderly including organization of storage areas. Remove trash, including debris resulting from removing weeds or rocks from planting areas, preparing beds, or planting plants, from site daily as work progresses. Keep walkway and driveway areas clean by sweeping or hosing.

END OF SECTION 329200

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SECTION 33 41 16 - SUBDRAINAGE PIPING

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Work included in this section relates to all pipe, fittings, materials, and appurtenances related to underground subdrainage.

1.2 SUBMITTALS

- A. Submit shop drawings prior to ordering materials for review.
- B. Provide shop drawings for the following:
 - 1. Underdrain pipe
 - 2. Impermeable liner

PART 2 - PRODUCTS

2.1 PERFORATED-WALL PIPES AND FITTINGS

- A. Pipe materials in this article have perforated walls and typically are joined with loose joints.
- B. Perforated PE pipe and fittings:
- C. Perforated PVC sewer pipe and fittings: ASTM D 2729, gasketed bell-and-spigot ends.
- D. Solid wall PVC pipe, ASTM D 3034
- E. Solid wall PE pipe, AASHTO M252, or AASHTO M294, type S

2.2 SOIL AND GRANULAR MATERIALS

- A. Materials are specified in Section 31 23 33.

2.3 GEOTEXTILE FABRIC

- A. Materials are specified in Section 31 32 19

PART 3 – EXECUTION

3.2 EXAMINATION

- A. Examine surfaces and areas for suitable conditions where subdrainage systems are to be installed.
- B. If subdrainage is required for landscaping, locate and mark existing utilities, underground structures, and aboveground obstructions before beginning installation and avoid disruption and damage of services.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Excavating, earthwork, trenching, and backfilling are specified in Division 31.

3.3 FOUNDATION DRAINAGE INSTALLATION (where applicable).

- A. Refer to Architectural detail.
- B. Where applicable, tie foundation drains with PVC Sch 40 pipe (or equal) using positive slope (0,5% min.) to nearby storm sewers or storm structure impervious

3.4 FOUNDATION DRAINAGE INSTALLATION (where applicable)

- A. Place impervious fill material on sub-grade adjacent to bottom of footing after concrete footing forms have been removed. Place and compact impervious fill to dimensions indicated, but not less than 6 inches (150 mm) deep and 12 inches (300 mm) wide.
- B. Where applicable, lay flat-style geotextile filter fabric in trench and overlap trench sides.
- C. Place supporting layer of drainage course over compacted sub-grade and geotextile filter fabric, to compacted depth of not less than 4 inches (100 mm).
- D. Where applicable, encase pipe with sock-style geotextile filter fabric before installing pipe.
Connect sock sections per manufactures requirements.
- E. Add drainage course to width of at least 6 inches (150 mm) on side away from wall and to top of pipe to perform tests.
- F. After satisfactory testing, cover drainage piping to width of at least 6 inches (150 mm) on side away from footing and above top of pipe to within 12 inches (300 mm) of finish grade.
- G. Where applicable, install drainage course and wrap top of drainage course

with flat-style geotextile filter fabric overlapping edges at least 4 inches (100 mm).

- H. Place backfill material over compacted drainage course. Place material in loose-depth layers not exceeding 6 inches (150 mm). Thoroughly compact each layer. Final backfill to finish elevations and slope away from building where applicable.

3.5 LANDSCAPING DRAINAGE INSTALLATION (Where applicable. Refer to Landscape Drawings.)

- A. Provide trench width to allow installation of drainage conduit. Grade bottom of trench excavations to required slope, and compact to firm, solid bed for drainage system.
- B. Lay flat-style geotextile filter fabric in trench and overlap trench sides (min 4 inches).
- C. Place supporting layer of drainage course over compacted subgrade and geotextile filter fabric, to compacted depth of not less than 4 inches (100 mm).
- D. Install drainage conduits as indicated in part 3 "piping installation" article for landscaping subdrainage with horizontal distance of at least 6 inches (150 mm) between conduit and trench walls. Wrap drainage conduits without integral geotextile filter fabric with flat-style geotextile filter fabric before installation. Connect fabric sections with tape.
- E. Add drainage course to top of drainage conduits.
- F. After satisfactory testing, cover drainage conduit to within 12 inches (300 mm) of finish grade.
- G. Install drainage course and wrap top of drainage course with flat-style geotextile filter fabric.
- H. Place layer of non-woven geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches (100 mm).
- I. Fill to grade: place satisfactory soil fill material over drainage course. Place material in loose- depth layers not exceeding 6 inches (150 mm). Thoroughly compact each layer. Fill to finish grade.

3.6 PIPING INSTALLATION

- A. Show relationships of piping and other materials on drawings.
- B. Install piping beginning at low points of system, true to grades and alignment indicated, with unbroken continuity of invert. Bed piping with full bearing in filtering material. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions and other requirements indicated.

C. Miscellaneous (where applicable):

1. Underslab subdrainage: install piping level.
2. Foundation subdrainage: Install piping level and with a minimum cover of 36 inches (915 mm) unless otherwise indicated.
3. Retaining-wall subdrainage: when water discharges at end of wall into stormwater piping system, install piping level and with a minimum cover of 36 inches (915 mm) unless otherwise indicated.
4. Landscaping subdrainage: install piping pitched down in direction of flow, at a minimum slope of 0.5 percent and with a minimum cover of 36 inches (915 mm) unless otherwise indicated.
5. Lay perforated pipe with perforations facing down.
6. Excavate recesses in trench bottom for bell ends of pipe. Lay pipe with bells facing upslope and with spigot end entered fully into adjacent bell.

D. Use increasers, reducers, and couplings made for different sizes or materials of pipes and fittings being connected. Reduction of pipe size in direction of flow is prohibited.

E. Install thermoplastic piping according to ASTM D 2321.

3.7 PIPE JOINT CONSTRUCTION

- A. Join perforated pipe and fittings with couplings according to ASTM D 3212 with loose banded, coupled, or push-on joints.
- B. Join perforated PVC sewer pipe and fittings according to ASTM D 3212 with loose bell-and- spigot, push-on joints.
- C. Special pipe couplings: join piping made of different materials and dimensions with special couplings made for this application. Use couplings that are compatible with and fit materials and dimensions of both pipes.

3.8 BACKWATER VALVE INSTALLATION (Where applicable)

- A. Install horizontal backwater valves in header piping downstream from perforated subdrainage piping.
- B. Backwater valves must be accessible for maintenance. Detail backwater valves and manholes or pits if backwater valve's check valve cannot be reached from the surface.

- C. Install horizontal backwater valves in piping in manholes or pits where indicated.

3.9 CLEANOUT INSTALLATION

- A. Where applicable, cleanouts for foundation, retaining-wall and landscaping subdrainage:
 - 1. Install cleanouts from piping to grade. Locate cleanouts at beginning of piping run and at changes in direction. Install fittings so cleanouts open in direction of flow in piping.
 - 2. In vehicular-traffic areas, use nps 4 (dn 100) cast-iron soil pipe and fittings for piping branch fittings and riser extensions to cleanout. Set cleanout frames and covers in a cast-in-place concrete anchor, [18 by 18 by 12 inches (450 by 450 by 300 mm)] deep. Set top of cleanout flush with grade.
 - 3. In non-vehicular-traffic areas, use nps 4 (dn 100) cast-iron pipe and fittings for piping branch fittings and riser extensions to cleanout. Where applicable, set cleanout frames and covers in a cast-in-place concrete anchor, 12 by 12 by 4 inches (300 by 300 by 100 mm) deep. Set top of cleanout 1 inch (25 mm) above grade.
 - 4. Comply with requirements for concrete specified. Use $F_c' = 3000$ psi concrete. Use air entrainment when concrete is exposed to freeze/thaw conditions.
- B. Cleanouts for underslab subdrainage:
 - 1. Install cleanouts and riser extensions from piping to top of slab. Locate cleanouts at beginning of piping run and at changes in direction. Install fittings so cleanouts open in direction of flow in piping.
 - 2. Use nps 4 (dn 100) cast-iron soil pipe and fittings for piping branch fittings and riser extensions to cleanout flush with top of slab

3.10 CONNECTIONS

- A. Contract Documents indicate general arrangement of piping, fittings, and specialties.
- B. Connect low elevations of subdrainage system to building's solid-wall-piping storm drainage system.
- C. Where required, connect low elevations of foundation and underslab subdrainage to stormwater sump pumps.

3.11 FIELD QUALITY CONTROL

- A. Tests and inspections:
 - 1. After installing drainage course to top of piping, test drain piping with water to ensure free flow before backfilling.
 - 2. Remove obstructions, replace damaged components, and repeat test until results are satisfactory.
- B. Drain piping will be considered defective if it does not pass tests and inspections.
- C. If piping does not pass inspections and tests, the Contractor is to correct issues at no extra cost to the Owner.
- D. Prepare test and inspection reports.

3.12 CLEANING

- A. Clear interior of installed piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed. Place plugs in ends of uncompleted pipe at end of each day or when work stops.

END OF SECTION

GEOTECHNICAL REPORT

For

DIX PARK PICNIC AREA

SR 44, Portage County, Ohio

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August 3, 2022

Mr. Christopher Bednar, P.E.
Director of Civil
Karpinski Engineering
3135 Euclid Avenue
Cleveland, OH 44115

Re: Geotechnical Subsurface Exploration Report
Proposed Picnic Pavilion
Dix Park
7318 State Route 44
Ravenna, Portage County, Ohio 44266
PSI Project No.: 0142-2598

Dear Mr. Bednar:

Per your request, Professional Service Industries, Inc. (PSI) is pleased to submit this Geotechnical Engineering Services Report for the above referenced project. The results of this exploration, together with our recommendations are to be found in the accompanying report.

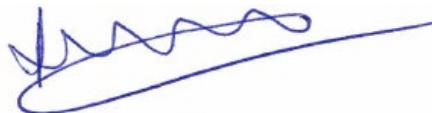
After the plans and specifications are complete, PSI should review the final design and specifications in order to verify that the earthwork and recommendations are properly interpreted and implemented. **It is considered imperative that the geotechnical engineer and/or its representative be present during earthwork operations and foundation installations to observe the field conditions with respect to the design assumptions and specifications. PSI will not be held responsible for interpretations and field quality control observations made by others.**

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.

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Zaineddin Obeid
Project Manager

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A. Veeramani, P.E.
Director / Principal Consultant

Subsurface Exploration Report



For the Proposed

**Picnic Pavilion
Dix Park
7318 State Route 44
Ravenna, Portage County, Ohio 44266
PSI Project No.: 0142-2342**

Prepared for

**Karpinski Engineering
3135 Euclid Avenue
Cleveland, OH 44115**

Prepared by

**Professional Service Industries, Inc.
5555 Canal Road
Cleveland, OH 44125**

PSI Project No. 0142-2598

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Zaineddin Obeid
Project Manager

A handwritten signature in blue ink, appearing to read 'A. Veeramani'.

A. Veeramani, P.E.
Director/Principal Consultant

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BORING LOCATION PLAN
BORING LOGS
GRAIN SIZE GRAPH
ATTERBERG LIMIT
GENERAL NOTES
USCS SOIL CLASSIFICATION CHART

1 PROJECT INFORMATION

1.1 PROJECT AUTHORIZATION

This report presents the results of a geotechnical subsurface exploration and evaluation conducted for Karpinski Engineering in connection with the proposed Picnic Pavilion located at 7318 State Route 44 in Ravenna, Portage County, Ohio. PSI's services for this project were performed in accordance with PSI Proposal No. 0142-375763, dated June 9, 2022. Authorization to perform this exploration and analysis was in the form of sub consultant agreement with Karpinski Engineering, dated July 15, 2022.

1.2 PROJECT DESCRIPTION

Based on the provided information, proposed project includes construction of an open concrete pad for a pavilion measuring approximately 1,000 square feet in plan area. Based on our understanding, the new pavilion will be built on a hillside. Therefore, the concrete pad area grade will be raised and supported on up to 5 feet of new fill. The proposed pavilion will be supported on drilled piers.

No structural information was available at the time of this report. However, it is assumed that the anticipated maximum column and floor loads will be 20 kips and 100 psf, respectively for this submittal

No topographic plans were provided at the time of this report. However, based on the google earth, the site within the pavilion footprint slopes from northwest to southeast with an elevation difference about 5 feet (1,155' MSL to 1,150' MSL). No grading information was available at the time of this report submittal. However, based on information provided by client, it is anticipated that maximum fill operations of up to 5 feet will be necessary for the proposed structure.

The geotechnical recommendations presented in this report are based on the available project information, the proposed pad location and orientation of the pad on the site and the subsurface materials described in this report. If any of the information we have been given or have assumed is incorrect, please contact us so that we may amend the recommendations presented accordingly. PSI will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

1.3 PURPOSE AND SCOPE OF SERVICES

The purpose of this study was to explore the subsurface conditions at the site and to prepare recommendations for foundations, site preparation, and other construction considerations. Our scope for this service included a project site reconnaissance, drilling and sampling one (1) test borings, completing a laboratory testing program, and submitting an engineering analysis and evaluation of the surface materials.

The scope of services for the geotechnical exploration did not include an environmental assessment for the presence or absence of wetlands or hazardous or toxic materials in the soil, surface water, groundwater or air, on or below or around this site. Any statements in this report or on the boring logs regarding odors, colors or unusual or suspicious items or conditions are strictly for the information of the client. PSI's scope also did not include any service to investigate or detect the presence of moisture, mold or other biological contaminants in or around any structure, or any service that was designed or intended to prevent or lower the risk of the occurrence or the amplification of the same. The Client should be aware that mold is ubiquitous to the environment with mold amplification occurring when building materials are impacted by moisture. The Client should also be aware that site conditions are outside

of PSI's control, and that mold amplification will likely occur, or continue to occur, in the presence of moisture. As such, PSI cannot and shall not be held responsible for the occurrence or reoccurrence of mold amplification.

2 SITE AND SUBSURFACE CONDITIONS

2.1 SITE LOCATION AND DESCRIPTION

The site for the proposed development is located within Dix Park at 7318 State Route 44 in Ravenna, Portage County, Ohio. Specifically, the proposed pavilion/shelter will be located at coordinates: 41.189880°, -81.244011°.

The site area is currently a hillside covered with thick shrubbery. Note that the boring performed near the top of the slope. Based on the google earth, the pavilion area slopes from northwest to southeast with an elevation difference about 5 feet (1,155' MSL to 1,150' MSL). We recommend that any existing utility lines be checked and marked prior to construction activities.

2.2 SUBSURFACE CONDITIONS

The subsurface conditions at the site were explored with a total of one (1) test borings. The test borings were each drilled to a depth of approximately 25 feet below the existing surface grades. The approximate boring locations are shown on the Boring Location Plan presented in the *Appendix* of this report. The locations for the test borings were selected by PSI and located in the field relative to existing site features and based on site accessibility and the presence of below ground utilities.

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

The types of subsurface materials encountered in the test borings have been visually classified. The results of the visual classifications, Standard Penetration tests, moisture contents and water level observations are presented on the boring logs in the *Appendix* of this report. Representative samples of the soils were placed in sample jars, and are now stored in the laboratory for further analysis, if requested. Unless notified to the contrary, all samples will be disposed of after 60 days following the date of this report.

The surface of the site at test boring locations B-1 was covered with a layer topsoil measuring approximately 4 inches in thickness. The thickness and type of the surface and base materials should be expected to vary throughout the site.

The topsoil at test boring location B-1, was underlain by natural soils and extended to the depth of about 9 feet below the surface grade. The natural soils consisted of lean clay with varying amounts of silt and gravel. The natural soils exhibited moisture contents ranging from 9 to 13 percent. The natural cohesive soils exhibited a stiff consistency, based on the Standard Penetration tests.

The area's bottommost formation, consisting of soft to medium hard, brown, highly weathered sandstone bedrock and encountered at the depth of about 9 feet below the existing grade.

The subsurface description is of a generalized nature provided to highlight the major strata encountered. The boring logs included in the *Appendix* should be reviewed for specific information at the individual boring locations. The

stratifications shown on the boring logs represent the conditions only at the actual test positions. Variations may occur and should be expected between the boring locations. The stratifications represent the approximate boundary between the subsurface materials, and the transition may be gradual or not clearly defined.

2.3 GROUNDWATER LEVEL MEASUREMENTS

Groundwater was encountered at test boring location B-1 at a depth of about 18 feet below surface grades during field drilling operations and at a depth of about 15 feet below surface grades after completion of field drilling operations. Note that groundwater levels fluctuate seasonally as a function of precipitation. During a time of year or weather different from the time of drilling, there may be a considerable change in the water table. Furthermore, the water levels in the boreholes often are not representative of the actual groundwater level, because the boreholes remain open for a relatively short time. Therefore, we recommend that the contractor determine the actual groundwater levels at the time of construction to evaluate groundwater impact on the construction procedures.

3 EVALUATION AND RECOMMENDATIONS

3.1 SITE PREPARATION AND EARTHWORK CONSTRUCTION

Prior to placing concrete floors or engineered fill on this site, general site area clearing should be carried out. All topsoil, grass, roots, excessively wet soils, highly organic soils, and soft/loose or obviously compressible materials, should be completely removed from the proposed construction areas. The precise extent of required cut and fill should be determined in the field by a representative of PSI following observation of the exposed subgrades and proof rolling operations.

Following the site clearing, stripping and undercutting, and prior to placing engineered fill, the exposed subgrades should be critically proof rolled with a loaded 20-ton tandem-axle dump truck until the grade offers a relatively unyielding surface. Areas of excessive yielding, as observed by a PSI representative, should be excavated and backfilled with compacted engineered fill and/or the unstable soils can be stabilized by choking the exposed bearing surface with crushed limestone or similar coarse aggregate. After the existing subgrade materials are excavated to design grade, proper control of subgrade compaction and the placement and compaction of new fill materials should be observed and tested by a representative of PSI. It is recommended that the site preparation, proof rolling and earthwork activities should be performed during a period of dry weather, which can significantly reduce the required extent of soil stabilization, drainage and surface repairs.

Control points should be established within the anticipated fill areas (more than 4 feet) to monitor, during and subsequent to the completion of the fill operations, any and all settlements of the final grade resulting from consolidation of the area's subsurface materials under the weight of the engineered fill, and from the engineered fill under their own weight. Settlement-time data, thus developed, should be employed to establish the time of placement of the structure.

During site preparation, fill piles, burn pits, trash pits or other isolated disposal areas may be encountered. All too frequently such buried material occurs in isolated areas outside boring locations. Any such material encountered during site work, or foundation or floor slab construction should be excavated, removed from the site, and backfilled with compacted structural fill.

3.2 ENGINEERED FILL

Materials selected for use as structural fill should not contain more than 5 percent by weight of organic matter, waste construction debris, or other deleterious materials. Fill materials should have a standard Proctor maximum dry density of greater than 110 pounds per cubic foot (pcf), an Atterberg Liquid Limit of less than 40, a Plasticity Index of less than 15, and a maximum particle size of 3 inches or less. Structural fill should consist of non-expansive materials. Pyritic and/or potentially expansive materials, such as mine tailings, shales and slag should not be used as structural fill.

Based on the results of the boring explorations, the on-site natural soils are suitable for reuse as engineered fill. If the on-site soils are used for fill, close moisture content control will be required to achieve the recommended degree of compaction. PSI anticipates that disking and aerating the soils during a warm, dry period may be necessary to lower the moisture content. If engineered fill placement must proceed during a wet or cool time of the year, it may likely be infeasible to re-use the on-site soils as engineered fill, and imported fill materials would be required. If wet or cool season earthwork is necessary, we recommend the use of imported fill materials such as ODOT No. 304 or 411 crushed aggregate.

Fill materials should be placed and compacted in individual lifts of 8 inches or less loose measurement. Within small excavations such as in utility trenches, around manholes, or behind retaining walls, we recommend the use of smaller, hand or remote-guided equipment. Loose lift thicknesses of 4 inches or less are recommended when using such equipment.

We recommend that structural fill be compacted to a minimum of 98 percent of the maximum dry density and within $\pm 2\%$ of the optimum moisture content, as determined by ASTM D-698. The upper 24 inches of floor slab subgrade soils should be compacted to at least 100 percent of the maximum dry density and within $\pm 2\%$ of the optimum moisture content, as determined by ASTM D-698. A representative of PSI should observe fill placement operations and perform density tests concurrently to indicate if the specified compaction is being achieved.

3.3 FOUNDATION RECOMMENDATIONS

Based on the provided information, test borings, laboratory test results, and the proposed construction, our analysis indicates that the proposed picnic shelter structure can be supported on drilled pier foundation bearing on area natural soils with an allowable bearing pressure of 3,000 psf provided the piers bearing at least 10 feet below the existing site grades.

The minimum diameter of each pier element should be twenty-four (24) inches. The overburden soils would not be expected to be free standing in an open excavation for the depths of the piers. Therefore, for the pier excavations, temporary protective steel casing will be required. Temporary casing should be at least as large in outside diameter as the nominal shaft size and of sufficient wall thickness to resist crushing by hydrostatic and earth pressures.

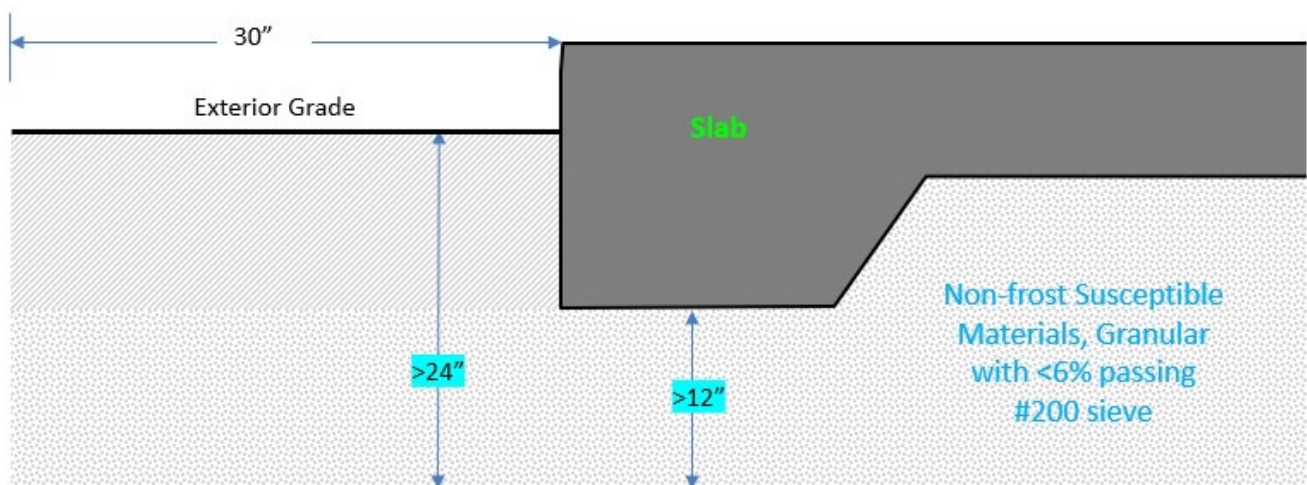
Pier excavations are to be concreted immediately following inspection and approval and are to be protected fully possible from groundwater ingress and inundation. If it is impossible to dewater any given excavation, concreting operations are to be carried out employing carefully controlled full depth tremie devices and procedures. It is recommended that concrete in a pier be poured the same day that the pier is drilled and have a slump of 7-9 inches. Reinforcement for the individual pier units should be designed for the maximum bending moment and shear force expected at any section of the pier member during the worst loading conditions. Every precaution is to be taken during casing removal procedures to preclude the possibility of groundwater or soil "blow in" below the bottom of the casing. During the concreting operations care is to be exercised to protect and to prevent misalignment of the included reinforcing steel.

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

Based on Table 1615.1.1 of the OBC Building Code, the test boring results, and review of the geology in the vicinity of the project area, a **Site Classification of 'C'** can be utilized for seismic design.

3.4 UNHEATED SLAB RECOMMENDATIONS

Grade supported slab structures in unheated areas shall have a minimum of 12 inches of non-frost susceptible materials to a depth of 24 inches below the exterior grade with at least 12 inches below the bottom of the slab or perimeter footings. These materials shall extend at least 30 inches from the outside limits of the grade supported slab. The 30-inch dimension can be reduced by 1.25 inches for every additional inch below 24 inches that the non-frost susceptible material is extended below grade. Non-frost susceptible soil is defined as drained, granular material with less than 6% passing the #200 sieve. The non-frost susceptible soils shall be graded and gravity drained such that it will not impound or trap water within the frost protected area.



For subgrade prepared as recommended and properly compacted fill, a modulus of subgrade reaction, k value, of 50 pounds per cubic inch (pci) may be used in the grade slab design based on correlation to values typically resulting from a 12-inch diameter plate load test. However, depending on how the slab load is applied, the value will have to be geometrically modified. The value should be adjusted for larger areas using the following expression for cohesive and cohesionless soil:

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

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

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

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

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

4 CONSTRUCTION CONSIDERATIONS

4.1 GROUNDWATER CONTROL AND DRAINAGE

Free groundwater was encountered at test boring location B-1 at a depth of about 18 feet below surface grades during field drilling operations and at a depth of about 15 feet below surface grades after completion of field drilling operations. Note that groundwater levels fluctuate seasonally. Accordingly, a gravity drainage system, sump pump or other conventional dewatering procedure, as deemed necessary by the field conditions, should be implemented throughout construction such that the groundwater is always controlled and maintained at an elevation of at least 2 feet below the excavation bottom. Every effort should be made to keep the excavations dry if water is encountered.

Water should not be allowed to collect near the foundation areas either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of any collected rainwater, groundwater or surface runoff. Positive site drainage should be provided to reduce infiltration of surface water around the perimeter of the foundation. Overall site area drainage is to be arranged in a manner such that the possibility of water impounding below foundation and over the structural fill is prevented.

4.2 EXCAVATIONS

In Federal Register, Volume 54, No. 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, Part 1926, Subpart P." This document was issued to better ensure the safety of workers entering trenches or excavations. It is mandated by this federal regulation that all excavations, whether they be utility trenches, basement excavations or foundation excavations, be constructed in accordance with the new OSHA guidelines. It is our understanding that these regulations are being strictly enforced. If they are not followed closely, the owner and the contractor could be liable for substantial penalties.

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

We are providing this information solely as a service to our client. PSI is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred. If the excavations are left open and exposed to the elements for a significant length of time, desiccation of the clays may create minute shrinkage cracks which could allow large pieces of clay to collapse or slide into the excavation.

Materials removed from the excavation should not be stockpiled immediately adjacent to the excavation, inasmuch as this load may cause a sudden collapse of the embankment.

4.3 WEATHER CONSIDERATIONS

The soils encountered at this site are known to be sensitive to disturbances caused by construction traffic and to changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in the soil strength and support capabilities. Care should be exercised during the grading operations at the site. Due to the fine-grained nature of the surficial soils, the traffic of heavy equipment, including heavy compaction equipment, may very well create pumping and a general deterioration of those soils in the presence of water. Therefore, the grading should, if possible, be performed during a dry season. A layer of crushed stone may be required to allow the movement of construction traffic over the site during the rainy season. The contractor should maintain positive site drainage and if wet/pumping conditions occur, the contractor will be responsible to over excavate the wet soils and replace them with a properly compacted engineered fill. During wet seasons, limestone stabilization may be required to place engineered fill.

5 GEOTECHNICAL RISK

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

6 REPORT LIMITATIONS

The recommendations submitted in this report are based on the available subsurface information obtained by PSI and design details furnished by Karpinski Engineering. If there are any revisions to the plans for the proposed fishing piers, building structures, or pavement areas, or if deviations from the subsurface conditions noted in this report are encountered during construction, PSI should be retained to determine if changes in the recommendations are required. If PSI is not retained to perform these functions, PSI will not be responsible for the impact of those conditions on the geotechnical recommendations for the project.

The Geotechnical Engineer warrants that the findings, recommendations, specifications, or professional advice contained herein, have been presented after being prepared in accordance with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics and engineering geology. No other warranties are implied or expressed.

After the plans and specifications are complete, it is recommended that PSI be provided the opportunity to review the final design and specifications, in order to verify that the earthwork and recommendations are properly interpreted and implemented. At that time, it may be necessary to submit supplementary recommendations. This report has been prepared for the exclusive use of Karpinski Engineering, for the specific application to the proposed Picnic Pavilion/Shelter located within Dix Park at 7318 State Route 44 in Ravenna, Portage County, Ohio.

APPENDIX

BORING LOCATION PLAN

BORING LOGS

GRAIN SIZE GRAPH

ATTERBERG LIMIT

GENERAL NOTES


USCS SOIL CLASSIFICATION CHART

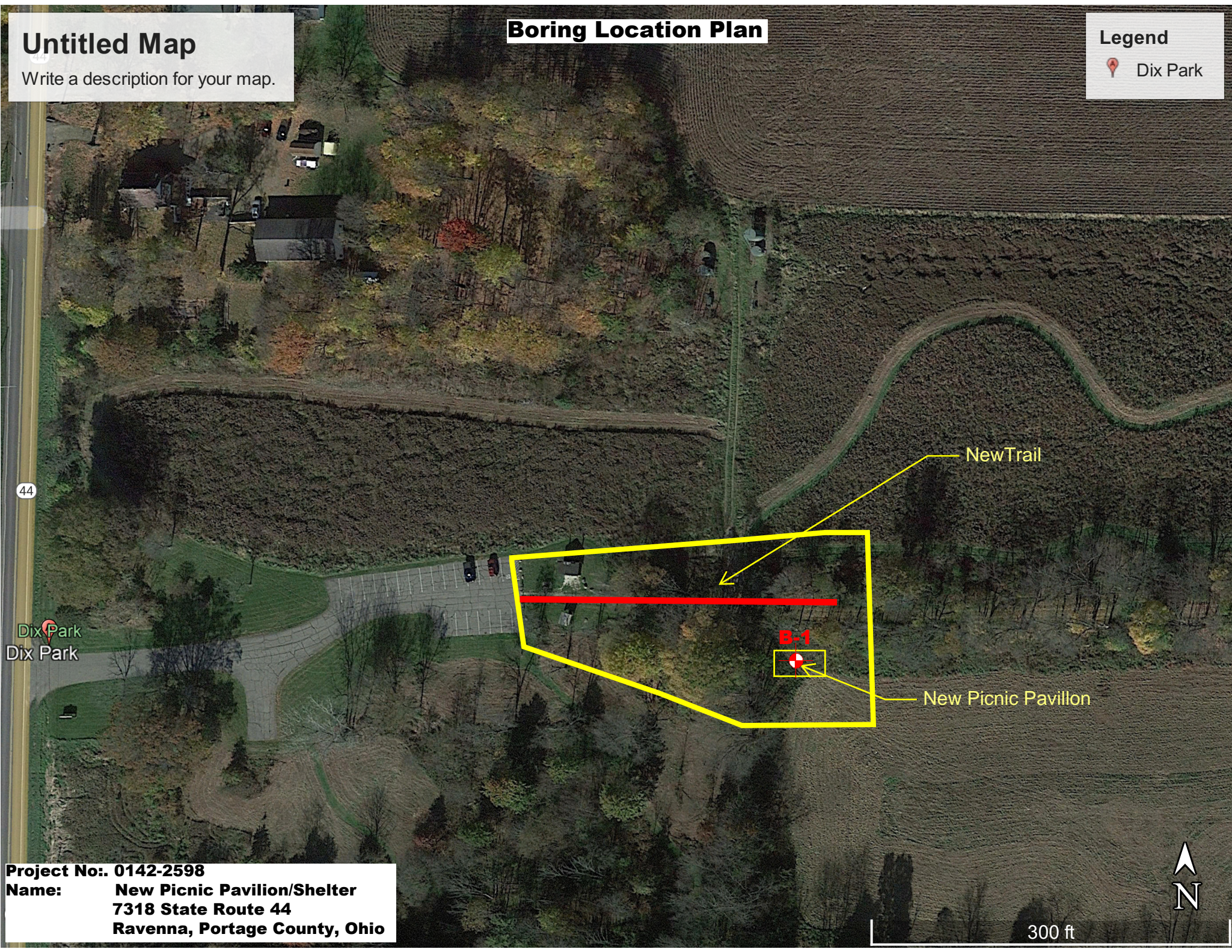
Untitled Map

Write a description for your map.

Boring Location Plan

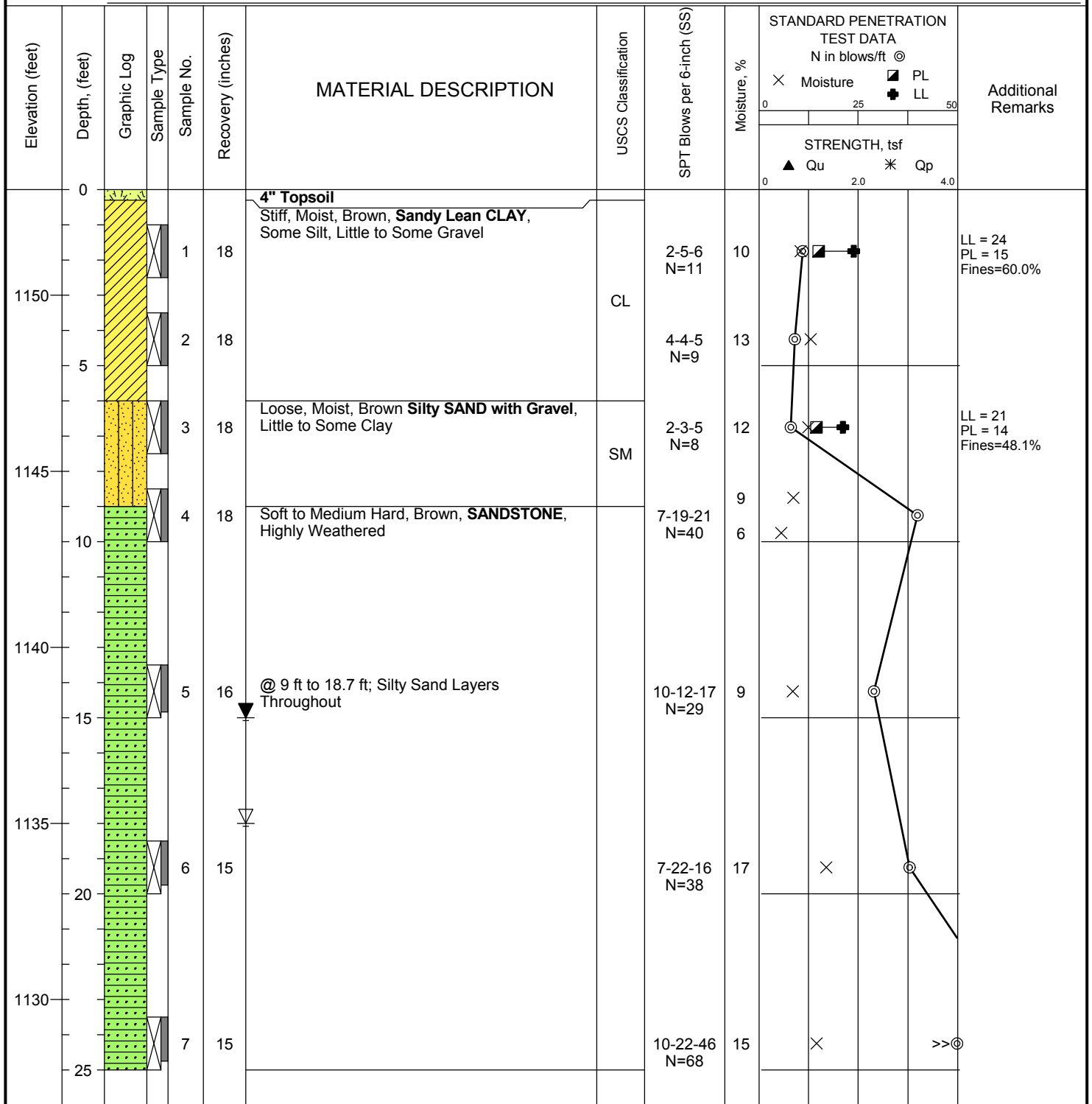
Legend

 Dix Park



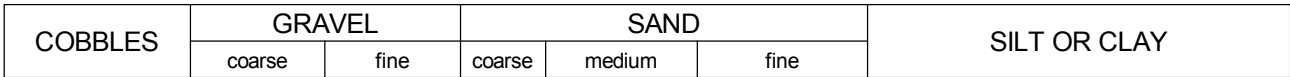
Project No.: 0142-2598
Name: New Picnic Pavilion/Shelter
7318 State Route 44
Ravenna, Portage County, Ohio

DATE STARTED: 7/27/22		DRILL COMPANY: PSI, Inc.		BORING B-1	
DATE COMPLETED: 7/27/22		DRILLER: TS LOGGED BY: ZO			
COMPLETION DEPTH: 25.0 ft		DRILL RIG: ATV CME-55		Water <div style="display: flex; justify-content: space-between;"> ▽ While Drilling 18 feet </div> <div style="display: flex; justify-content: space-between;"> ▼ Upon Completion 15 feet </div> <div style="display: flex; justify-content: space-between;"> ▽ Caved Depth N/A </div>	
BENCHMARK: N/A		DRILLING METHOD: Hollow Stem Auger			
ELEVATION: 1153 ft		SAMPLING METHOD: 2-in SS		BORING LOCATION:	
LATITUDE: 41.18988°		HAMMER TYPE: Automatic			
LONGITUDE: -81.244011°		EFFICIENCY: 93%			
STATION: N/A OFFSET: N/A		REVIEWED BY: AV			
REMARKS:					



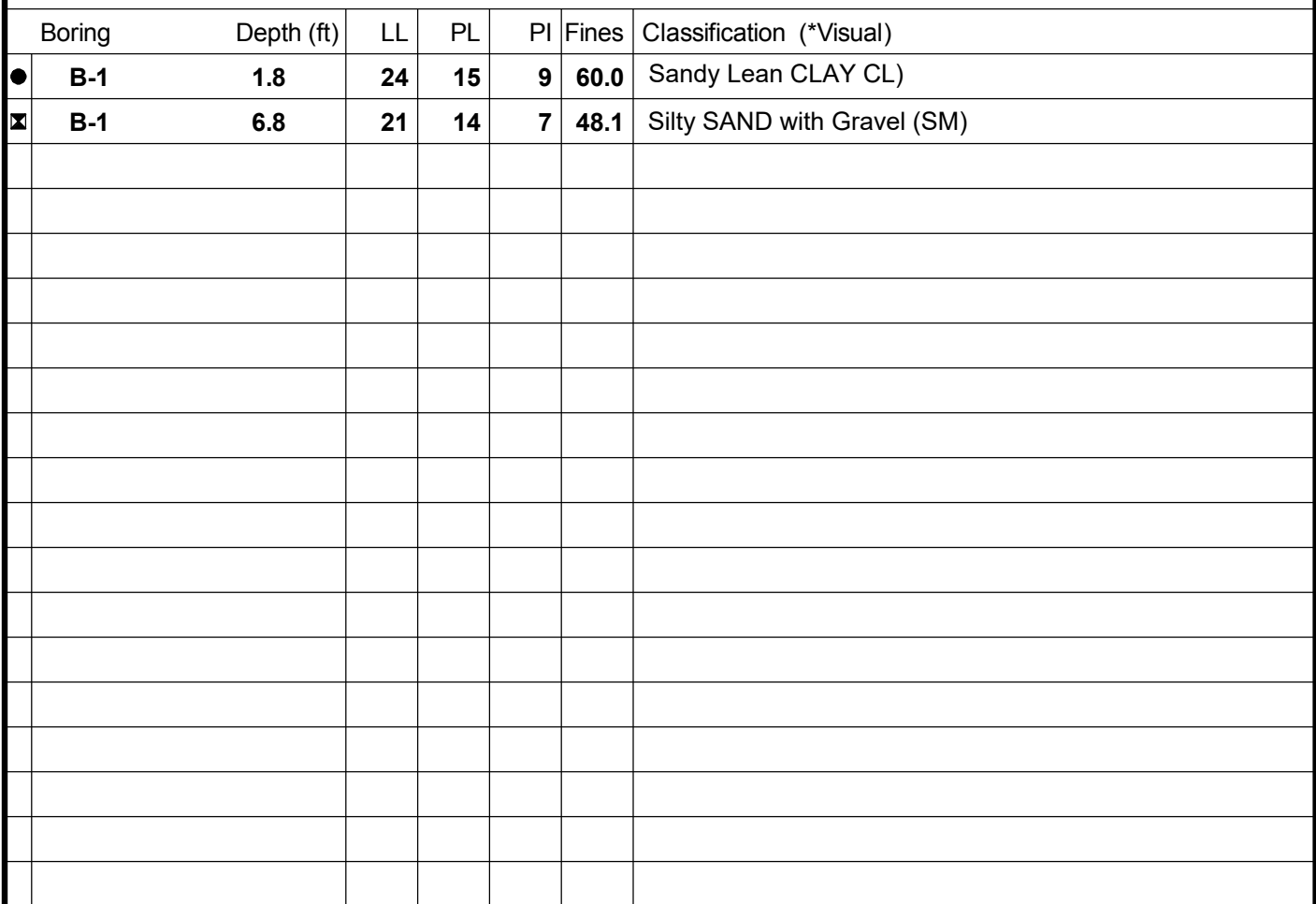
Professional Service Industries, Inc.
5555 Canal Road
Cleveland, OH 44125
Telephone: (216) 447-1335

PROJECT NO.: 0142-2598
PROJECT: Dix Park Pavilion
LOCATION: 7318 State Route 44
Ravenna, Portage County, OH



GRAIN SIZE DISTRIBUTION

Project:	Dix Park Pavilion
PSI Job No.:	0142-2598
Location:	7318 State Route 44 Ravenna, Portage County, OH



PSI Job No.: 0142-2598
Project: Dix Park Pavilion
Location: 7318 State Route 44
Ravenna, Portage County, OH



GENERAL NOTES

SAMPLE IDENTIFICATION

The Unified Soil Classification System (USCS), AASHTO 1988 and ASTM designations D2487 and D-2488 are used to identify the encountered materials unless otherwise noted. Coarse-grained soils are defined as having more than 50% of their dry weight retained on a #200 sieve (0.075mm); they are described as: boulders, cobbles, gravel or sand. Fine-grained soils have less than 50% of their dry weight retained on a #200 sieve; they are defined as silts or clay depending on their Atterberg Limit attributes. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size.

DRILLING AND SAMPLING SYMBOLS

SFA: Solid Flight Auger - typically 4" diameter flights, except where noted.	SS: Split-Spoon - 1 3/8" I.D., 2" O.D., except where noted.
HSA: Hollow Stem Auger - typically 3 1/4" or 4 1/4" I.D. openings, except where noted.	ST: Shelby Tube - 3" O.D., except where noted.
M.R.: Mud Rotary - Uses a rotary head with Bentonite or Polymer Slurry	BS: Bulk Sample
R.C.: Diamond Bit Core Sampler	PM: Pressuremeter
H.A.: Hand Auger	CPT-U: Cone Penetrometer Testing with Pore-Pressure Readings
P.A.: Power Auger - Handheld motorized auger	

SOIL PROPERTY SYMBOLS

N: Standard "N" penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2-inch O.D. Split-Spoon.
N ₆₀ : A "N" penetration value corrected to an equivalent 60% hammer energy transfer efficiency (ETR)
Q _u : Unconfined compressive strength, TSF
Q _p : Pocket penetrometer value, unconfined compressive strength, TSF
w%: Moisture/water content, %
LL: Liquid Limit, %
PL: Plastic Limit, %
PI: Plasticity Index = (LL-PL), %
DD: Dry unit weight, pcf
▼, ▼, ▼: Apparent groundwater level at time noted

RELATIVE DENSITY OF COARSE-GRAINED SOILS

Relative Density	N - Blows/foot
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	50 - 80
Extremely Dense	80+

ANGULARITY OF COARSE-GRAINED PARTICLES

Description	Criteria
Angular:	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular:	Particles are similar to angular description, but have rounded edges
Subrounded:	Particles have nearly plane sides, but have well-rounded corners and edges
Rounded:	Particles have smoothly curved sides and no edges

GRAIN-SIZE TERMINOLOGY

Component	Size Range
Boulders:	Over 300 mm (>12 in.)
Cobbles:	75 mm to 300 mm (3 in. to 12 in.)
Coarse-Grained Gravel:	19 mm to 75 mm (3/4 in. to 3 in.)
Fine-Grained Gravel:	4.75 mm to 19 mm (No.4 to 3/4 in.)
Coarse-Grained Sand:	2 mm to 4.75 mm (No.10 to No.4)
Medium-Grained Sand:	0.42 mm to 2 mm (No.40 to No.10)
Fine-Grained Sand:	0.075 mm to 0.42 mm (No. 200 to No.40)
Silt:	0.0075 mm to 0.075 mm
Clay:	<0.0075 mm (< 3/16 mm)

PARTICLE SHAPE

Description	Criteria
Flat:	Particles with width/thickness ratio > 3
Elongated:	Particles with length/width ratio > 3
Flat & Elongated:	Particles meet criteria for both flat and elongated

RELATIVE PROPORTIONS OF FINES

Descriptive Term	% Dry Weight
Trace:	< 5%
With:	5% to 12%
Modifier:	>12%



GENERAL NOTES

(Continued)

CONSISTENCY OF FINE-GRAINED SOILS

<u>Q_u - TSF</u>	<u>N - Blows/foot</u>	<u>Consistency</u>
0 - 0.25	0 - 2	Very Soft
0.25 - 0.50	2 - 4	Soft
0.50 - 1.00	4 - 8	Firm (Medium Stiff)
1.00 - 2.00	8 - 15	Stiff
2.00 - 4.00	15 - 30	Very Stiff
4.00 - 8.00	30 - 50	Hard
8.00+	50+	Very Hard

MOISTURE CONDITION DESCRIPTION

<u>Description</u>	<u>Criteria</u>
Dry:	Absence of moisture, dusty, dry to the touch
Moist:	Damp but no visible water
Wet:	Visible free water, usually soil is below water table

RELATIVE PROPORTIONS OF SAND AND GRAVEL

<u>Descriptive Term</u>	<u>% Dry Weight</u>
Trace:	< 15%
With:	15% to 30%
Modifier:	>30%

STRUCTURE DESCRIPTION

<u>Description</u>	<u>Criteria</u>	<u>Description</u>	<u>Criteria</u>
Stratified:	Alternating layers of varying material or color with layers at least ¼-inch (6 mm) thick	Blocky:	Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Laminated:	Alternating layers of varying material or color with layers less than ¼-inch (6 mm) thick	Lensed:	Inclusion of small pockets of different soils
Fissured:	Breaks along definite planes of fracture with little resistance to fracturing	Layer:	Inclusion greater than 3 inches thick (75 mm)
Slickensided:	Fracture planes appear polished or glossy, sometimes striated	Seam:	Inclusion 1/8-inch to 3 inches (3 to 75 mm) thick extending through the sample
		Parting:	Inclusion less than 1/8-inch (3 mm) thick

SCALE OF RELATIVE ROCK HARDNESS

<u>Q_u - TSF</u>	<u>Consistency</u>
2.5 - 10	Extremely Soft
10 - 50	Very Soft
50 - 250	Soft
250 - 525	Medium Hard
525 - 1,050	Moderately Hard
1,050 - 2,600	Hard
>2,600	Very Hard

ROCK BEDDING THICKNESSES

<u>Description</u>	<u>Criteria</u>
Very Thick Bedded	Greater than 3-foot (>1.0 m)
Thick Bedded	1-foot to 3-foot (0.3 m to 1.0 m)
Medium Bedded	4-inch to 1-foot (0.1 m to 0.3 m)
Thin Bedded	1¼-inch to 4-inch (30 mm to 100 mm)
Very Thin Bedded	½-inch to 1¼-inch (10 mm to 30 mm)
Thickly Laminated	1/8-inch to ½-inch (3 mm to 10 mm)
Thinly Laminated	1/8-inch or less "paper thin" (<3 mm)

ROCK VOIDS

<u>Voids</u>	<u>Void Diameter</u>
Pit	<6 mm (<0.25 in)
Vug	6 mm to 50 mm (0.25 in to 2 in)
Cavity	50 mm to 600 mm (2 in to 24 in)
Cave	>600 mm (>24 in)

GRAIN-SIZED TERMINOLOGY

(Typically Sedimentary Rock)	
<u>Component</u>	<u>Size Range</u>
Very Coarse Grained	>4.76 mm
Coarse Grained	2.0 mm - 4.76 mm
Medium Grained	0.42 mm - 2.0 mm
Fine Grained	0.075 mm - 0.42 mm
Very Fine Grained	<0.075 mm

ROCK QUALITY DESCRIPTION

<u>Rock Mass Description</u>	<u>RQD Value</u>
Excellent	90 - 100
Good	75 - 90
Fair	50 - 75
Poor	25 - 50
Very Poor	Less than 25

DEGREE OF WEATHERING

Slightly Weathered:	Rock generally fresh, joints stained and discoloration extends into rock up to 25 mm (1 in), open joints may contain clay, core rings under hammer impact.
Weathered:	Rock mass is decomposed 50% or less, significant portions of the rock show discoloration and weathering effects, cores cannot be broken by hand or scraped by knife.
Highly Weathered:	Rock mass is more than 50% decomposed, complete discoloration of rock fabric, core may be extremely broken and gives clunk sound when struck by hammer, may be shaved with a knife.

SOIL CLASSIFICATION CHART

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

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

