

18-004.0-CIP



BID SUBMITTAL AND CONTRACT DOCUMENTS FOR THE

CITY OF DUBLIN

COSGRAY DITCH - PHASE 1

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I. BIDDING REQUIREMENTS

A. INVITATION FOR BIDS

The CITY OF DUBLIN, Ohio will receive sealed bids for the materials and labor necessary for the construction of the COSGRAY DITCH - PHASE 1. Bids shall be received by CITY OF DUBLIN at 6555 Shier- Rings Road, Dublin, Ohio 43016 until 1:30 P.M. local time on May 19, 2020, at which time all bids will be opened and read aloud.

The CITY OF DUBLIN may choose to not award the bid—and bidders shall hold bids open—until ninety days after the bid opening. The work for which bids are invited consists of: relocation of approximately 7,200 lineal feet of Cosgray Ditch located on a 72 acre parcel. The cost estimate for the Project is \$1,440,000.00.

The contract documents are available online at no charge. Copies of the Contract Documents are on file at <https://dublinohiousa.gov/bids-and-requests-for-proposals/> where they are available for inspection by prospective bidders. Paper copies of the Contract Documents are not available for purchase.

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

Each proposal must contain the full name of the party or parties submitting the proposal and all persons interested therein. Each bidder must submit evidence of its experience on projects of similar size and complexity. The owner intends and requires that this project be completed by Interim Completion: September 18, 2020 - Final Completion: October 30, 2020.

All contractors and subcontractors involved with the project will to the extent practicable use Ohio products, materials, services and labor in the implementation of their project. Payment of Prevailing Wages IS required for this Project.

The CITY OF DUBLIN reserves the right to accept or reject any or all bids, to waive any informalities or irregularities in the bidding process and to enter into a contract with the bidder whom, in its opinion, offers the lowest and best bid.

Each bidder must ensure that all employees and applicants for employment are not discriminated against based on race, color, religion, sex, or national origin.

By order of the Council of the CITY OF DUBLIN, OHIO. Ordinance number N/A.

Publish dates: May 5, 2020
 May 12, 2020

B. INSTRUCTIONS TO BIDDERS

1. PRELIMINARY MATTERS

- a. The Project owner is the CITY OF DUBLIN, OHIO. The Owner’s Representative is Paul A. Hammersmith P.E., Director of Engineering / City Engineer. **You may direct questions or request for additional information to Mike Sweder, P.E. at Telephone: 614-410-4621; Email: msweder@dublin.oh.us.**
- b. In connection with the Legal Notice, the CITY OF DUBLIN (hereinafter called the “City”), issues this Request for Bids for all labor, material, and services necessary for constructing the COSGRAY DITCH - PHASE 1 (the “Project”), as more fully described in the Contract Documents.
- c. Definitions. The word uses here shall have the following meanings:
 - i. “City” or “Owner” shall mean the CITY OF DUBLIN, OHIO.
 - ii. “Bidder” or “Contractor” shall all mean an entity or person that submits a bid for the Project and ultimately the entity or person awarded the contract as applicable.
 - iii. “Contract Documents” shall mean the documents included with this bid solicitation and listed as Contract Documents in the City/Contractor Agreement.
 - iv. “O.R.C.” shall mean the OHIO REVISED CODE.
- d. The Project consists of the following contract(s) for the work on the Project:
 - i. General Contract
- e. Estimate of Cost [O.R.C. 153.12(A)].
 - i. The total estimated construction cost for the base bid Work for the Project for which the City is soliciting bids at this time is \$1,440,000.00.

2. CONTRACTOR QUALIFICATIONS, REGISTERED CONTRACTORS, INCOME TAX, PERMITTING

- a. A Bidder may be a person, private entity, or any combination of such entities supported by a letter of intent to enter into an agreement or under an existing agreement in association in the form of a joint venture or other consortium. In the case of a joint venture or other consortium:
 - i. All members shall be jointly and severally liable for the execution of the Contract, and
 - ii. The association shall nominate a representative who shall have the authority to conduct all business for and on behalf of any and all the members of the joint venture or the consortium during the bidding process and, in the event the joint venture or consortium is awarded the Contract, during Contract execution.
- b. Threshold Qualifications. Every Contractor, before entering a contract with the City, must demonstrate the following:

- i. Registered Contractors. Any person or company (including subcontractors) intending to do work under these Contract Documents shall be required to meet the CITY OF DUBLIN laws for Contractor Registration, if any, contained in the Codified Ordinances of the CITY OF DUBLIN as applicable to the particular classification of work to be performed.
 - ii. Licensed Contractors. Bidders and subcontractors for work requiring licenses under the O.R.C. shall submit evidence of such licensing in accordance with O.R.C. Chapter 4740.
 - iii. Foreign Corporations. Business entities formed outside of the state of Ohio shall present proof of registry with the Ohio Secretary of State and demonstrate the existence of an Ohio statutory agent.
- c. Income Taxes. All persons or entities performing work under these Contract Documents shall comply with the requirements set forth in the Codified Ordinances of the CITY OF DUBLIN.
- d. Permits and Regulations - Unless otherwise previously or subsequently specified, the Contractor shall procure and pay for all permits, licenses, inspections and approvals necessary for the execution of his contract. The City will obtain the required building permit for permanent structure.
 - i. The Contractor shall comply with all laws, ordinances, rules, orders and regulations relating to the performance of the work required to complete the Project.
 - ii. The Contractor's attention is directed to the "Safety and Health Regulations for Construction" of the Occupational Safety and Health Administration, U.S. Department of Labor and to its responsibilities thereunder.

3. GENERAL INSTRUCTIONS

- a. City expects the Bidder to examine all instructions, forms, terms, and specifications in the Request for Bids. Each Bidder is solely responsible for conducting its own due diligence and investigation in support of the preparation of Bids, negotiation of agreements, and the subsequent delivery of all services it will provide. Bidder's failure to furnish all information or documentation required by the Bidding Documents may result in the City rejecting the Bid.
- b. Public Information. The City considers all information, documentation and other materials requested to be submitted in response to this solicitation to be a non-confidential and/or non-proprietary nature and therefore subject to public disclosure under the Ohio Public Records Laws except as specifically exempted by those laws. [O.R.C. Chapter 149].
- c. Bidder should carefully read the information contained herein. It is the Bidder's responsibility to submit a complete response to all requirements and questions. Any information submitted by Bidders shall become the property of the City and submitted at the Bidder's sole expense. The City shall not pay any stipend for any submissions related

to the bidding process. The City will not provide compensation to Bidders for any expenses incurred for Bid preparation or for any presentations made.

- d. The City may disqualify bids that are qualified with conditional clauses, or alterations, or items not called for in the bid documents, or irregularities and deviations from the requirements of the Contract Documents.
- e. The City makes no guarantee that an award will be made because of this bid, and reserves the right to accept or reject any or all bids, waive any formalities or minor technical inconsistencies, or delete any item/requirements from this bid or resulting contract when deemed to be in the City's best interest.

4. INTERPRETATION

- a. **If a Bidder contemplating submitting a Bid for the proposed Project is in doubt as to the true meaning of any part of the Contract Documents, it may submit a written request for an interpretation thereof to Mike Sweder, P.E., in writing on the form included with the Contract Documents. Inquiries shall be faxed to 614-453-8707 to the attention of Mike Sweder, P.E. or e-mailed to msweder@dublin.oh.us.** The City will make any interpretation of the proposed documents by Addendum only, duly signed by the City, and a copy of such Addendum will be e-mailed or delivered to each Bidder receiving a set of Contract Documents and each plan room where the City maintains the Contract Documents. The City will not be responsible for any other explanation or interpretation of the proposed documents.
- b. In interpreting the Contract Documents, the Bidder shall interpret words describing materials that have a well-known technical or trade meaning, unless otherwise specifically defined in the Contract Documents, in accordance with the well-known meaning recognized by the trade.

5. DOCUMENTS TO SUBMIT WITH BID

- a. The Bidder shall submit the following completed forms with its response to this Request for Bids:
 - i. Bid Form
 - ii. Bid Guaranty and Contract Bond
 - iii. Affidavit of Authority (if applicable)
 - iv. Personal Property Tax Affidavit
 - v. Bidder's Qualification Statement
 - vi. Insurance Certificate
 - vii. Noncollusion affidavit
 - viii. State of Ohio Bureau of Workers' Compensation Certificate
 - ix. Proposed Supervisory Personnel List
 - x. Proposed Subcontractor List
 - xi. Bidder's and Subcontractors' Certificate(s) of licensure, if applicable

- b. In addition to the foregoing requirements, Bids submitted by a joint venture or other consortium shall include a copy of the joint venture/consortium agreement entered into by all members. Alternatively, a binding letter of intent or similar irrevocable instrument to execute a joint venture/consortium agreement in the event of a successful Bid shall be signed by all members and submitted with the Bid, together with a copy of the proposed joint venture/consortium agreement.
- c. Each Bidder shall submit the following number of copies of its Bid to the City: 1 copy printed 1 sided and one additional copy in electronic PDF form. The PDF form must exactly match the hard copy and must be provided within 24 hours after the Bid opening. The Bid Form shall be signed with the name typed or printed below the signature. A Bid shall not be submitted by facsimile transmission. A Bidder shall sign its Bid in the form required under Ohio law to bind the Bidder's particular type of business entity to a contract.
- d. Each Bid shall be enclosed and delivered in a sealed opaque envelope with the Bidder's name and the title of the Project printed in the upper left hand corner and addressed as follows: **ATTN: Paul A. Hammersmith P.E., Director of Engineering / City Engineer, 6555 Shier- Rings Road, Dublin, Ohio 43016**. The Bidder shall be responsible for delivering its Bid to this office and address for the Bid opening before the deadline set forth in the Legal Notice—as extended by any addenda. The City will not open Bids that arrive after the deadline regardless of how the Bidder delivers the Bid.
- e. After the City opens the Bids, it may require the Bidders to make available additional financial information, including, but not limited to, financial statements from the previous three years for review of the City. Such financial statements shall be audited financial statements to the extent available or, if not available, at least be reviewed financial statements. At the City's discretion, it may obtain a copy of such financial information. To the extent the City maintains copies of such documents, the City shall keep additional financial information it receives pursuant to a request under this paragraph confidential to the extent possible, except under proper order of a court. The additional financial information should not be a public record under section 149.43 of the Revised Code. (See O.R.C. 9.312).

6. CLARIFICATION OF BIDS

- a. To assist in the examination, evaluation, and comparison of the Bids and the qualifications of the Bidders, the City may ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder that is not in response to a request by the City shall not be considered. The City's request for clarification and the response shall be in writing. No change in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the City in the evaluation of the Bids.

7. BONDS

- a. Each bidder shall submit one of the statutorily required forms of bid security as set forth in O.R.C. Section 153.54 on the form included with the Contract Documents. There are two ways to meet these requirements:

- i. OPTION #1: Submit the Combined Bid/Performance/Payment Bond on the form included with the Contract Documents along with the Bid; or,
 - ii. OPTION #2: Submit a certified check, cashier's check, or letter of credit pursuant to Chapter 1305 of the Revised Code, conditioned to provide that if the bid is accepted, the bidder, after the awarding or the recommendation for the award of the contract, whichever the contracting authority designates, will enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material. Any letter of credit shall be revocable only at the option of the City. The amount of the certified check, cashier's check, or letter of credit shall be equal to ten per cent of the bid. Any of the foregoing instruments shall be submitted with the CITY OF DUBLIN listed as the payee or beneficiary. If the Bidder chooses option ii and is awarded the Contract, the Bidder shall then submit a Bond using the form included with the Contract Documents.
- b. With any Bond required here, the Bidder shall submit or ensure:
- i. *Ohio Department of Insurance Certificate.* Proof that the bond is issued by a surety company ("Surety") authorized by the Ohio Department of Insurance to transact business in the State of Ohio and acceptable to the City in the form of a certificate.
 - ii. *A Financial Statement.* Proof that the bond is issued by a Surety capable of demonstrating a record of competent underwriting, efficient management, adequate reserves, and sound investments. These criteria will be deemed to be met if the Surety currently has an A.M. Best Company Policyholders rating of "A-" better and has or exceeds the Best Financial Size Category of Class VI. Other Sureties may be acceptable to the City, in its sole discretion.
 - iii. *Proper signatures, credentials, and Power of Attorney.* The bond shall be signed by an authorized agent of an acceptable Surety and by the Bidder; and, include credentials showing the Power of Attorney of the agent.
 - iv. The name, address, and telephone and fax numbers of the Surety and the Surety's Agent should be typed or printed on each bond.

8. EXECUTION OF CONTRACT

- a. Within 10 days after award of the Contract, the successful Bidder shall execute and deliver to the City an original of the City/Contractor Agreement, based upon the City's form. Such contract shall include the terms required by Ohio law and documents required by the Instructions to Bidders and Contract Documents for the Project. The successful Bidder shall have no property interest or rights under the City/Contractor Agreement until the Agreement is properly executed by the City.

9. STATE SALES AND USE TAXES

- a. The City is a political subdivision of the State of Ohio and is exempt from taxation under the Ohio Sales Tax and Use Tax Laws. Building materials that the successful Bidder purchases for incorporation into the Project will be exempt from state sales and use taxes if the successful Bidder provides a properly completed Ohio Department of Taxation

Demolition Contract Exemption Certificate to the vendors or suppliers when acquiring the materials. The City will execute properly completed certificates on request.

10. COMPLETION DATE

- a. Each successful Bidder shall have its Work on the Project Complete as follows: Interim Completion: September 18, 2020 - Final Completion: October 30, 2020. The Contract Time shall run from the date of the Notice to Proceed or if there is no Notice to Proceed from the Effective Date of the City/Contractor Agreement.

11. MODIFICATION/WITHDRAWAL OF BIDS

- a. Modification. A Bidder may modify its Bid by written communication to the City addressed to the City's Representative at any time before the scheduled closing time for receipt of Bids, provided such written communication is received by City's Representative before the Bid deadline. The written communication shall not reveal the Bid price, but should provide the addition or subtraction or other modification so that the final prices or terms will not be known to the City until the sealed Bid is opened. If the Bidder's written instructions with the change in Bid reveal the Bid amount in any way before the Bid opening, the Bid may be rejected as non-responsive.
- b. Withdrawal. Bids may be withdrawn with permission of the City or in strict accordance with O.R.C. Section 9.31 which generally commands that Bidders may withdraw their bids from consideration if the price of the bid was substantially lower than the other bids, providing the bid was submitted in good faith, and the reason for the price bid being substantially lower was a clerical mistake as opposed to a judgment mistake, and was actually due to an unintentional and substantial arithmetic error or an unintentional omission of a substantial quantity of work, labor, or material made directly in the compilation of the bid. Notice of a claim of right to withdraw such bid must be made in writing filed with the City within two business days after the conclusion of the bid opening procedure.

12. PREVAILING WAGES

- a. This Project is horizontal construction with an estimated cost of **\$1,440,000.00**, and the **Bidder is required to comply with all applicable Ohio Prevailing Wage requirements and labor laws for this Project.**
- b. If Prevailing Wage applies to this Project, the determination of the prevailing rates of wages of mechanics and laborers in accordance with section 4115.05 of the Revised Code for the class of work called for by the Project, in the locality where the work is to be performed, shall be attached to and made part of the Contract Documents.
- c. If Prevailing Wage applies to this Project, the Contractor must pay at least the wage rates subsequently listed in the Wage determinations. The Contractor must submit properly executed copies of the Contractor's and subcontractor's payrolls to the City's Prevailing Wage Coordinator in accordance with the requirements of Section 4115.071 of the O.R.C.. Payroll records shall be kept current as failure to do so will delay the Owner's approval for payment of any pending estimates.

13. ALTERNATES

- a. The City may request bids on alternates. If the City requests bids on alternates, the Bidder should include the cost of the alternates requested on its Bid Form.
- b. At the time of awarding the contract, the City will select or reject alternates as it determines is in its best interest. A Bidder's failure to include in its Bid Form the cost of an alternate selected by the City and applicable to the Bidder's work may render the bid non-responsive and be grounds for the rejection of the bid. Otherwise, the failure to include the cost of an alternate will not be deemed material.
- c. The Bidder acknowledges that although there is an estimate for the cost of the Project, the market conditions may and frequently do result in the estimate being different from the sum of the bids received, either higher or lower. The Bidder understands that the City may include alternates, which may include deduct alternates as well as add alternates, to give it flexibility to build the Project with the funds available. The Bidder further understands and acknowledges that use of add and deduct alternates is a long held customary practice in the construction industry in the State of Ohio. The Bidder also acknowledges that the City will not make a decision about the alternates on which to base the award of contracts until the bids are received, and the City can compare its available funds with the base bids and the cost or savings from selecting different alternates. The Bidder understands that the award to the Bidder submitting the lowest and best bid will be based on the lowest and best base bid plus selected alternates, and may result in an award to a Bidder other than the Bidder that submitted the lowest base bid. The bidder also acknowledges that its, and other bidders', bids may become responsive or non-responsive based on whether the bidders bid and are qualified for all base work and alternates; and, the City's selection of alternates. The City will evaluate bids to determine the lowest and best bid after it selects the alternates.
- d. If, during the progress of the Work, the City desires to reinstate any alternate not included in the Contract, the City reserves the right to reinstate the alternate at the price bid by the Contractor if such action is taken in sufficient time so as not to delay the progress of the work or cause the Contractor additional expense.

14. UNIT PRICES

- a. Where unit prices are requested in the Bid Form, the Bidder should quote a unit price. Unless otherwise expressly provided in the Bid Documents, such unit prices shall include all labor, materials, and services necessary for the timely and proper installation of the item for which the unit prices are requested. The unit prices quoted in the bid shall be the basis for any Change Orders entered into under the City/Contractor Agreement, unless the Design Professional determines that the use of such unit prices will cause substantial inequity to either the Contractor or the City.
- b. The estimated quantities shown herein are approximate only and the City assumes no responsibility for the accuracy of the estimates. Bidders are cautioned to make their own investigations and determinations of the conditions under which the work will be performed and to base their bids accordingly.

15. ADDENDA

- a. The City reserves the right to issue Addenda changing, altering, or supplementing the Contract Documents before the time set for receiving bids. The City will issue the Addenda to clarify bidders' questions and/or to change, alter, or supplement the Contract Documents.
- b. Any explanation, interpretation, correction, or modification of the Contract Documents will be issued in writing in the form of an Addendum, which shall be the only means considered binding. Any explanations, interpretations, or other representations made by any other means shall not be legally binding. All Addenda shall become a part of the Contract Documents.
- c. Bidders shall submit written questions to the City in sufficient time in advance of the bid opening to allow sufficient time for the City to respond. All Addenda will be issued, except as hereafter provided, and mailed or otherwise furnished to persons who have obtained Contract Documents for the Project, before the published time for the opening of bids.
- d. Copies of each Addendum will be sent only to the Bidders to whom Contract Documents have been issued and to Plan Rooms where copies of the Contract Documents are maintained. Receipt of Addenda shall be indicated by Bidders in the space provided on the Bid Form. Bidders are responsible for acquiring issued Addenda in time to incorporate them into their bid. Bidders should contact the City before the bid opening to verify the number of Addenda issued.
- e. Each Bidder shall carefully read and review the Contract Documents and immediately bring to the attention of the City any error, omission, inconsistency, or ambiguity therein.
- f. If a Bidder fails to indicate receipt of all Addenda through the last Addendum issued by the Design Professional on its Bid Form, the bid of such Bidder will be deemed to be responsive only if:
 - i. The bid received clearly indicates that the Bidder received the Addendum, such as where the Addendum added another item to be bid upon and the Bidder submitted a bid on that item; or
 - ii. The Addendum involves only a matter of form or is one that has either no effect or has merely a trivial or negligible effect on price, quantity, quality, or delivery of the item bid upon.

16. PREFERENCE FOR PUBLIC IMPROVEMENT CONTRACTS (As Selected)

- a. [X] With respect to the award of this Contract, the City shall give preference to a contractor having its principal place of business in Ohio over a contractor having its principal place of business in a state that provides a preference in favor of contractors of that state for the same type of work. Where a preference is provided by another state for contractors of that state, a contractor having its principal place of business in Ohio is to be granted by the City the same preference over them in the same manner and on the same basis and to the same extent as the preference is granted in letting contracts for the same type of work by the other state. If one party to a joint venture is a contractor having

its principal place of business in Ohio, the joint venture shall be considered as having its principal place of business in Ohio.

- b. With respect to the award of this Contract, the City shall not give preference to a contractor having its principal place of business in Ohio over other contractors.

17. METHOD OF AWARD

- a. In evaluating Bids, the City may conduct such investigations as are deemed necessary to establish the qualifications and financial ability of the Bidder and its subcontractors and suppliers. The Bidder authorizes the City and its representatives to contact the owners, design professionals, and others having knowledge (collectively "Contacts") on projects on which the Bidder has worked and authorizes and requests such Contacts to provide the City with a candid evaluation of the Bidder's performance. By submitting its Bid, the Bidder agrees that if it or any person, directly or indirectly, on its behalf or for its benefit brings an action against any of such Contacts or the employees of any of them as a result of or related to such candid evaluation, the Bidder will indemnify and hold such Contacts and the employees of any of them from any claims whether or not proven that are part of or are related to such action and from all legal fees and expenses incurred by any of them arising out of or related to such legal action. This obligation is expressly intended for the benefit of such Contacts and the employees of each of them.
- b. All Bids shall remain open for acceptance for 60 days following the day of the Bid opening, but the City may, in its sole discretion, release any Bid and return the Bid Guaranty before that date.
- c. The City reserves the right to reject any, part of any, or all Bids and to waive any informalities and irregularities. The Bidder expressly acknowledges this right of the City to reject any or all Bids or to reject any incomplete or irregular Bid. The City will award a single contract for each of the Bid packages listed above, unless it determines to reject one or more Bid packages. Bidders must furnish all information requested. Failure to do so may result in disqualification of the Bid.
- d. Determination of the Bidder Submitting the Lowest and Best Bid. Subject to the right of the City to reject any or all Bids, the City will award the Contract for the Work to the Bidder submitting the lowest and best Bid, taking into consideration accepted alternates.
 - i. Buy Ohio/American and Ohio Contractor Bid Preference. If selected above, the City shall apply a domestic Ohio bid preference as outlined below.
 - 1. Bids will first be evaluated to determine that a bidder's offering is for a domestic source end product as defined in 48 CFR Pt. 25.003 and as required by Section 106.09 of the General Conditions. Information furnished by the Bidder in its Bid shall be relied upon in making this determination. Any Bidder's offering that does not offer a domestic source end product shall be rejected, except where the City determines that certain articles, materials and supplies are not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality.

- a. Following the determination as to domestic source end products, remaining bids and proposals shall be evaluated as set forth below, so as to give preference to Ohio bids or bidders who are located in a border state, provided that the border state imposes no greater restrictions than contained in this rule.
2. Buy Ohio Act compliance
- a. Where the preliminary analysis of bids identifies the apparent low bid as an Ohio bid or a bid from a border state, the City shall proceed with its standard contract award practices and procedures as set forth in the Instructions to Bidders.
 - b. Where the preliminary analysis identifies the apparent low bid as one other than an Ohio bid or bid from a border state, the City shall consider the following factors:
 - i. Whether the goods or services can be procured in-state in sufficient and reasonably available quantities and of a satisfactory quality;
 - ii. Whether an Ohio bid has been submitted;
 - iii. Whether the lowest Ohio bid, if any, offers a price to the City deemed to be an excessive price (defined as a price that exceeds by more than five per cent the lowest non-Ohio bid submitted);
 - iv. Whether the lowest Ohio bid, if any, offers a disproportionately inferior product or service.
 - c. Where the City determines that selection of the lowest Ohio bid, if any, will not result in an excessive price or disproportionately inferior product or service, the City shall include that Bidder in its lowest and best analysis.
 - d. Where the City otherwise determines it is advantageous to propose the award of a contract to other than an Ohio bidder or bidder from a border state, the City shall include that Bidder in its lowest and best analysis.
- ii. In addition to the forgoing, City may consider the following criteria in determining the lowest and best bidder; and, in its discretion, may consider and give such weight to these criteria as it deems appropriate:
- 1. Past Contract Performance
 - a. Whether Bidder has failed to perform a contract within the last five years from the date of Bid submission based on all information including fully settled disputes or litigation. A fully settled dispute or litigation is one that has been resolved in accordance with the dispute resolution mechanism under the respective contract, and

where all appeal instances available to the Bidder have been exhausted.

- b. Whether Bidder has failed to sign a contract after submitting a bid security in the past five years.
- c. All pending litigation shall in total not represent more than ten percent (10%) of the Bidder's net worth and shall be treated as resolved against the Bidder.
- d. Bidder's history of making claims against others or having claims made against it; and, if the Bidder's management operates or has operated another construction company, the work history of that company in determining whether the Bidder submitted the lowest and best Bid.

2. Financial Ability

- a. The Bidder's financial ability to complete the Contract successfully and on time without resort to its Surety.
- b. The City may request Bidder provide for its review audited financial statements, to the extent available, and if not available, reviewed financial statements including balance sheets, income statements, and cash flow statements, or other financial statements acceptable to the City, for the last three years to demonstrate the current soundness of the Bidder's financial position and its prospective long term profitability.
 - i. The Bidder's average coefficient of Current ratio (Current Assets/Current Liabilities) compared to 1. The greater, the better.
 - ii. The Bidder's average coefficient of Debt ratio (Total Debt/Total Assets) compared to 1. The lesser, the better.

3. Experience

- a. Whether the Bidder has experience under contracts in the role required by this Contract for at least the last five years before the Bid submission deadline, and with activity in at least nine months each year.
- b. Whether the Bidder has participated as in the role required by this Contract in at least two contracts within the last five years, each with a value of at least 85% of the stated estimate for this Project, that have been successfully and substantially completed and that are similar to the proposed Works. Similarity shall be based on the physical size, complexity, methods, technology or other characteristics as described in the Contract Documents.

- c. For the above or other contracts executed during the period stipulated in above, whether the Bidder has experience in the following key activities: relocation of approximately 7,200 lineal feet of Cosgray Ditch located on a 72 acre parcel.
 - d. Whether the Bidder has a record of consistent customer satisfaction and of consistent completion of projects, including projects that are comparable to or larger and more complex than the Project, on time and in accordance with the applicable Contract Documents.
 - e. The Bidder's prior experience on other projects with the CITY OF DUBLIN and with other public owners, including the Bidder's demonstrated ability to complete its work on these projects in accordance with the Contract Documents and on time, and will also consider its ability to work with the City as a willing, cooperative, and successful team member.
4. Whether the Bidder possesses or can obtain sufficient equipment and facilities to complete the Project.
 5. The adequacy, in numbers and experience, of the Bidder's work force to complete the Contract successfully and on time.
 6. The Bidder's compliance with federal, state, and local laws, rules, and regulations, including but not limited to the Occupational Safety and Health Act, Prevailing Wage laws, and Ethics laws.
 7. The Bidder's participation in a drug-free workplace program acceptable to the City, and the Bidder's record for both resolved and unresolved findings of the Auditor of State for recovery as defined in Section 9.24 of the O.R.C..
 8. The City's prior experience with the Bidder's surety.
 9. The Bidder's interest in the Project as evidenced by its attendance at any pre-Bid meetings or conferences for Bidders.
 10. Depending upon the type of the work, other essential factors, as the City may determine and as are included in the Specifications.
 11. The foregoing information with respect to each of the Subcontractors and Suppliers that the Bidder intends to use on the Project.
- e. With its Bid, the Bidder will complete and submit to the City a completed Contractor's Qualification Statement (using the form included in the Contract Documents), and thereafter will provide the City with such additional information as the City may request regarding the Bidder's qualifications.
 - f. The failure to submit requested information on a timely basis may result in the determination that the Bidder is not the lowest and best Bidder.

- g. With its Bid, the Bidder shall submit a list of proposed subcontractors using the form included with the Contract Documents. Subcontract work shall not total more than **50%** of the Contractor's Contract with the City.
- h. The City reserves the right to reject proposed Subcontractors before the Contract is awarded. The Bidder shall replace rejected subcontractors with subcontractors acceptable to the City with no change in the amount of the Bid submitted by the Bidder to City. After approval by the City of the list of proposed Subcontractors, Suppliers, and manufacturers submitted by the successful Bidder, the list shall not be changed unless written approval of the change is authorized by the City. The City reserves the right to reject Subcontractors after the Contract is awarded. In that instance, the City shall only be liable to the Contractor for the difference in Contract Price between the rejected subcontractor and the replacement subcontractor. The Contractor's markup on the replacement subcontractor shall be equal to or less than the markup on the rejected subcontractor contract.
- i. With its Bid, the Bidder shall submit a list of supervisory personnel with which it intends to staff the Project indicating their respective roles on the Project. The City reserves the right to reject proposed personnel both before and after the Contract is awarded with no additional cost to the City. Once the personnel list is approved by the City, it shall not be changed without the written consent of the City.
- j. No Bidder may withdraw its Bid within ninety (90) days after the date Bids are opened. The City reserves the right to waive any formalities or irregularities or to reject any or all Bids.
- k. The City reserves the right to disqualify Bids, before or after opening, upon evidence of collusion with intent to defraud or other illegal practices on the part of the Bidder.
- l. By submitting its Bid, the Bidder agrees that the City's determination of which Bidder is the lowest and best Bidder shall be final and conclusive, and that if the Bidder or any person on its behalf challenges such determination in any legal proceeding, the Bidder will indemnify and hold the City and its employees and agents harmless from any claims included or related to such legal proceeding, whether or not proven, and from legal fees and expenses incurred by the City, its employees, or agents that arise out of or are related to such challenge.
- m. Award of Contract. The award and execution of the Contract, when required, will only be made pursuant to the legal process applicable to the City for awarding contracts of this nature.

END OF INSTRUCTIONS TO BIDDERS

C. REQUEST FOR INFORMATION (PRE-BID)

**CITY OF DUBLIN
COSGRAY DITCH - PHASE 1**

The person, firm, or corporation submitting a request for information shall be responsible for its prompt delivery and do so in a manner that will allow a sufficient period of time for the issuance and delivery of an Addendum before receipt of bids. The CITY OF DUBLIN will not be responsible for any other explanations of the Contract Documents made before the receipt of bids.

Please submit all pre-bid questions in writing by facsimile or electronic mail (Email) to: Mike Sweder, P.E., 614-453-8707 or e-mailed to msweder@dublin.oh.us

Company:	Contact Name:
Email:	Phone:
Requested Information:	

D. BID COVERSHEET

BIDDERS SHALL ATTACH THIS FORM AS THE COVERSHEET TO THE BID. USE THE BOXES BELOW TO CHECK YOUR WORK. COMPLETING THIS FORM DOES NOT GUARANTEE THAT YOUR BID WILL BE RESPONSIVE OR SELECTED; BUT, SHOULD HELP TO OVERCOME THE MOST COMMON BIDDER MISTAKES. THE CITY OF DUBLIN, OHIO RESERVES THE RIGHT TO REJECT ANY AND ALL PROPOSALS AND TO WAIVE ANY INFORMALITIES OR IRREGULARITIES IN THE PROPOSALS.

- 1. Bidder's Company Name: _____
- 2. Total Bid (From Bid Form): \$ _____

BID PACKAGE

- Reviewed in detail?

PROPOSAL

- Acknowledged any addenda?
- Total bid amount completed in words and figures?
- Signed by a person with authority to bind your company?
- No changes made to form or conditions added?

BID SCHEDULE

- Completely filled in?

COMBINED BID/PERFORMANCE/PAYMENT BOND

- Your company name in the Principal blank?
- Surety name in the Surety blank?
- Dollar amount should be blank
- Signed as indicated?

COMBINED DELINQUENT PERSONAL PROPERTY TAX & NONCOLLUSION AFFIDAVIT

- Filled in?
- Signed?
- Notarized?

AFFIDAVIT OF AUTHORITY

- Needs completed if you are anything other than a sole proprietor
- Filled in?
- Signed?
- Notarized?

POWER OF ATTORNEY (OUT OF STATE CORPORATION)

- Must have if you are an out of state corporation

LIST OF SUBCONTRACTORS

- Completed?

LIST OF SUPERVISORY PERSONNEL

Completed?

CONTRACTOR QUALIFICATION STATEMENT

Completed?

INSURANCE CERTIFICATE

Submitted?

WORKERS COMPENSATION COVERAGE

Submitted?

W-9 FORM

Submitted?

E. PREVAILING WAGE RATES DISK

II. BIDDING FORMS

A. PROPOSAL

**CITY OF DUBLIN
COSGRAY DITCH - PHASE 1**

_____ (the "Bidder") submits this Proposal having read and examined the contract documents, including but not limited to the Invitation to Bid.

Addenda Number

Date of Receipt

The Bidder proposes to perform all work for the Agreement for Construction in accordance with the contract documents for the following sum:

Total Bid (in figures): \$ _____

Total Bid (in words): _____

In the event of a discrepancy between the amount of the total bid as written in figures and in words, the amount written in words shall govern.

Unless otherwise specified in the Bid Document the amount of the total bid is based on the unit prices or lump sum set forth in the Bid Schedule attached hereto and incorporated herein.

The Bidder understands and agrees that all work to be performed under the Agreement for Construction shall be completed by the date or time required by the Contract Documents unless an extension of time is granted by the CITY OF DUBLIN.

Upon failure to have the work completed within the project time, the CITY OF DUBLIN, OHIO shall be entitled to retain or recover from the Bidder, as liquidated damages, and not as a penalty, the amounts set forth in the Contract Documents for each and every calendar day until completion. The right of the CITY OF DUBLIN, OHIO to recover liquidated damages shall not substitute for any recovery for additional costs in the event the Bidder fails to complete the Agreement for Construction according to the Contract Documents.

REPRESENTATIONS OF THE BIDDER

The Bidder represents the following:

1. The Bidder has read and understands the Contract Documents and understands that it must comply with all requirements of the Contract Documents, regardless of whether the Bidder has actual knowledge of the requirements and regardless of any statement or omission made by the Bidder that might indicate a contrary intention.
2. The Bid is based upon the items specified by the Contract Documents.
3. The Bidder has visited the site, become familiar with local conditions, and has correlated personal observations about the requirements of the Contract Documents. The Bidder has no outstanding questions regarding the interpretation of the Contract Documents.
4. Within ten (10) business days from the date of receipt the Notice of Intent to Award, the Bidder understands that it must enter into and execute an agreement for CITY OF DUBLIN, COSGRAY DITCH - PHASE 1 if awarded based on this proposal. If the Bidder does not execute an agreement for the Project for any reason, the Bidder and the Bidder's surety shall be liable to the CITY OF DUBLIN, OHIO as provided in O.R.C. Section 153.54.
5. Within ten (10) business days of the date of receipt of the Notice of Intent to Award, the Bidder understands that it must submit the following:
 - a. Performance Bond. (If combined bid/performance/payment not submitted already).
 - b. Copy of Additional Insured Endorsement.
6. The Bidder understands that it must furnish any other information requested by the CITY OF DUBLIN.

The Bidder hereby signs this Proposal on the ___ day of _____, 2020.

If Bidder is an individual, complete the following:

Signature: _____

Print Name: _____

Name of Business: _____

(if different from above)

Federal Identification Number: _____

Address: _____

Telephone: () _____

Fax: () _____

If Bidder is a partnership, complete the following:

Name of Partnership: _____

By: _____

(Signature)

Print Name: _____

Federal Identification Number: _____

Address: _____

Telephone: () _____

Fax: () _____

Names and Addresses of all general partners:

If Bidder is a joint venture, complete the following:

Name of Joint Venture: _____

By: _____

(Signature)

Print Name: _____

Address: _____

Telephone: () _____

Fax: () _____

Complete the following for each firm represented by the joint venture:

1. Name: _____

Federal Identification Number: _____

Address: _____

Telephone: () _____

Fax: () _____

2. Name: _____

Federal Identification Number: _____

Address: _____

Telephone: () _____

Fax: () _____

If Bidder is a corporation, complete the following:

Name of Corporation: _____

By: _____

(Signature)

Print Name: _____

Title: _____

Federal Identification Number: _____

Address: _____

Telephone: () _____

Fax: () _____

State of Incorporation: _____

Names and addresses of Corporate Officers:

If Bidder is an entity other than those described above, complete the following:

Name of Bidder:

By: _____

(Signature)

Print Name: _____

Title: _____

Federal Identification Number: _____

Address: _____

Telephone: () _____

Fax: () _____

Type of Business Entity: _____

Names and addresses of all Principals:

BID SCHEDULE

BIDDER agrees to perform all work described in the CONTRACT DOCUMENTS for the following unit prices:

Cosgray Ditch - Phase 1

CITY OF DUBLIN

(8)
(3) x (7)

REF NO.	(1) ITEM	(2) DESCRIPTION	(3) QUANT.	(4) UNIT	(5) LABOR (\$)	(6) MATERIAL (\$)	(7) (5)+(6) TOTAL (\$)	(8) TOTAL EXTENDED INFORMAL PRICE (\$)
1	201	Clearing and Grubbing	1	LS				
2	202	Structure Removed, Misc.	1	LS				
3	203	Embankment	13,560	CY				
4	203	Embankment (Including Placing Stockpiled Cobble), As Per Plan	110	CY				
5	203	Excavation (Including Cobble Stockpile), As Per Plan	49,640	CY				
6	207	Erosion and Sediment Control	1	LS				
7	601	Rock Channel Protection, Type C with Filter	4	CY				
8	604	Manhole, Type C (AA-S102 with ST-03)	2	EA				
9	623	Construction Layout Stakes	1	LS				
10	624	Mobilization	1	LS				
11	630	Preservation Area Sign, As Per Plan	33	EA				
12	651	Topsoil Stockpiled, As Per Plan	8,110	CY				
13	652	Placing Stockpiled Topsoil (With Compost), As Per Plan	9,462	CY				
14	653	Topsoil Furnished and Placed, As Per Plan	1,960	CY				
15	659	Lime	6	AC				
16	659	Repair Seeding, As Per Plan	11,412	SY				
17	659	Hydroseeding, Flexterra, As Per Plan	35,790	SY				
18	659	Seeding and Mulching, Class 2	21,270	SY				
19	661	Bare Root Shrubs, 18" Ht., As Per Plan	2,040	EA				
20	661	Bare Root Trees, 18" Ht., As Per Plan	2,040	EA				
21	661	Deciduous Shrub, No. 5 Cont., As Per Plan	1,030	EA				
22	661	Deciduous Tree, No. 15 Cont., As Per Plan	680	EA				
23	661	Planting Repair, As Per Plan	40	HR				
24	661	Willow Live Stake, 24" Ht., As Per Plan	2,120	EA				
25	670	Slope Erosion Protection Mat Type E	1,950	SY				
26	901	24" Pipe, 706.02, With Type 1 Bedding, With CMSC 912 Compacted Granular Material	95	LF				

BID SCHEDULE

BIDDER agrees to perform all work described in the CONTRACT DOCUMENTS for the following unit prices:

Cosgray Ditch - Phase 1

CITY OF DUBLIN

(8)
(3) x (7)

REF NO.	(1) ITEM	(2) DESCRIPTION	(3) QUANT.	(4) UNIT	(5) LABOR (\$)	(6) MATERIAL (\$)	(7) (5)+(6) TOTAL (\$)	(8) TOTAL EXTENDED INFORMAL PRICE (\$)
27	SPEC	Boulder Toe, As Per Plan	190	CY				
28	SPEC	Dewatering, As Per Plan	1	LS				
29	SPEC	Drain Tile Tie-In, As Per Plan	5	EA				
30	SPEC	Concrete Flared End Section	2	EA				
31	SPEC	Grade Checking, As Per Plan	1	LS				
32	SPEC	Record Drawing, As Per Plan	1	LS				
33	SPEC	Rock Substrate, As Per Plan	200	CY				
34	SPEC	Site Restoration, As Per Plan	1	LS				

GRAND TOTAL =

TOTAL BID FOR PROJECT: _____

SUBMITTING CONTRACTOR: _____

C. COMBINED BID/PERFORMANCE/PAYMENT BOND

**CITY OF DUBLIN
COSGRAY DITCH - PHASE 1**

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned _____ (the "Principal") and _____ (the "Surety"), are hereby held and firmly bound unto the CITY OF DUBLIN, Ohio as obligee in the penal sum of the dollar amount of the bid submitted by the Principal to the CITY OF DUBLIN on _____, 2020 to undertake the project known as the **CITY OF DUBLIN, COSGRAY DITCH - PHASE 1.**

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

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

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above-named Principal has submitted a bid for the CITY OF DUBLIN, COSGRAY DITCH - PHASE 1.

NOW, THEREFORE, if the CITY OF DUBLIN 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 CITY OF DUBLIN the difference not to exceed ten percent of the penalty hereof between the amount specified in the bid and such larger amount for which the CITY OF DUBLIN may in good faith contract with the next lowest bidder to perform the work covered by the bid, or in the event the CITY OF DUBLIN does not award the contract to the next lowest bidder and resubmits the project for bidding, the Principal will pay the CITY OF DUBLIN 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, of printing new contract documents, required advertising and printing and mailing notices to prospective bidders, whichever is less, then this obligation shall be null and void, otherwise to remain in full force and effect; if the CITY OF DUBLIN 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.

NOW ALSO, if the Principal shall well and faithfully do and perform the things agreed by Principal to be done and performed according to the terms of said contract; and shall pay all lawful claims of subcontractors, material men, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said contract; we agreeing and assenting that this undertaking shall be for the benefit of any material man or laborer having a just claim, as well as for the CITY OF DUBLIN 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 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 or specifications therefore shall in any wise affect the obligations of the Surety on the Surety's bond, and the Surety does hereby waive notice of any such modifications, omissions or additions to the terms of the contract or to the plans or specifications.

Signed this ____ day of _____, 2020.

PRINCIPAL:

By: _____

(Signature)

Print Name: _____

Title: _____

Address:

Telephone: () _____

SURETY:

By: _____

(Signature)

Print Name: _____

Title: _____

Address:

Telephone: () _____

SURETY AGENT:

By: _____

(Signature)

Print Name: _____

Title: _____

Address:

Telephone: () _____

D. ALTERNATE BID SECURITY FORM

Bidder Name: _____

Project Name: **COSGRAY DITCH - PHASE 1**

The undersigned Bidder hereby submits with its bid the following bid security equaling 10% of the total amount of the bid as required by Ohio Revised Code Section 153.54:

A Certified Check

A Cashier's Check

A Letter of Credit pursuant to Chapter 1305 of the Ohio Revised Code

A bid guaranty filed under this form shall be conditioned to provide that if the bid is accepted, the bidder, after the awarding or the recommendation for the award of the contract, whichever the CITY OF DUBLIN designates, will enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material. All bid guaranties filed hereunder shall be payable to the CITY OF DUBLIN, be for the benefit of the CITY OF DUBLIN, and be deposited with, and held by, the CITY OF DUBLIN.

Bidder Signature: _____

Print Name: _____

E. AFFIDAVIT OF AUTHORITY

**CITY OF DUBLIN
COSGRAY DITCH - PHASE 1**

(To be completed and executed if the Contractor is anything other than a sole proprietorship.)

State of _____ (State Where Completing this Form)

County of _____ (County Where Completing this Form) SS:

_____ (Your Name), being duly sworn, deposes and says that he or she is the _____ (Position) of _____ (Business Name), a _____ (Type of Entity) organized and existing under and by virtue of the laws of the State of _____ (State), and having its principal office at: _____ (Address), _____ (City), _____ (County), _____ (State).

Affiant further says that he is familiar with the records, minute books and by-laws of _____ (Business Name).

Affiant further says that _____ (Name of Person Signing Contract) _____ (Title of Person Signing Contract) of _____ (Business Name) is duly authorized to sign the Contract for the CITY OF DUBLIN COSGRAY DITCH - PHASE 1 Project on behalf of _____ (Business Name) by virtue of _____.

(Describe how the person signing the Contract has Authority to sign for example: "a provision of the by-laws" or "a resolution of the Board of Directors"—if by resolution, give date of adoption.)

_____, _____
(Your Signature) (Your Position)

The foregoing instrument was acknowledged before me this _____ (date) by _____ (name of person acknowledged). Signature and Seal of person taking acknowledgement:

G. W-9 FORM

Form W-9 (Rev. December 2011) Department of the Treasury Internal Revenue Service	<h2 style="margin:0;">Request for Taxpayer Identification Number and Certification</h2>	Give Form to the requester. Do not send to the IRS.
Print or type See Specific Instructions on page 2.	Name (as shown on your income tax return)	
	Business name/disregarded entity name, if different from above	
	Check appropriate box for federal tax classification: <input type="checkbox"/> Individual/sole proprietor <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶	
	<input type="checkbox"/> Other (see Instructions) ▶	
	Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
City, state, and ZIP code		
List account number(s) here (optional)		

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I Instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number									
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Employer identification number									
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	-		-		-		-		

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
- I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 4.

Sign Here	Signature of U.S. person ▶	Date ▶
------------------	----------------------------	--------

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued).
- Certify that you are not subject to backup withholding, or
- Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

H. LIST OF SUBCONTRACTORS

**CITY OF DUBLIN
COSGRAY DITCH - PHASE 1**

NOTE: The bidder must perform at least 50% of the total contract cost with its own forces.

1. Name of Subcontractor (Include names of any parent company) : _____

Federal Identification Number: _____

Address _____

Type of Work:

Subcontractor to Provide: _____

Approximate Percentage of the Contract Cost to be Performed by Subcontractor: _____

Experience Record: _____

2. Name of Subcontractor (Include names of any parent company) : _____

Federal Identification Number: _____

Address: _____

Type of Work:

Subcontractor to Provide: _____

Approximate Percentage of the Contract Cost to be Performed by Subcontractor: _____

Experience Record: _____

3. Name of Subcontractor (Include names of any parent company) : _____

Federal Identification Number: _____

Address: _____

Type of Work:

Subcontractor to Provide: _____

Approximate Percentage of the Contract Cost to be Performed by Subcontractor: _____

Experience Record: _____

4. Name of Subcontractor (Include names of any parent company) : _____

Federal Identification Number: _____

Address: _____

Type of Work:

Subcontractor to Provide: _____

Approximate Percentage of the Contract Cost to be Performed by Subcontractor: _____

Experience Record: _____

5. Name of Subcontractor (Include names of any parent company) : _____

Federal Identification Number: _____

Address: _____

Type of Work:

Subcontractor to Provide: _____

Approximate Percentage of the Contract Cost to be Performed by Subcontractor: _____

Experience Record: _____

Add additional sheets if necessary.

I. CONTRACTOR QUALIFICATION STATEMENT

Contractor: _____

Date: _____

Project: **COSGRAY DITCH - PHASE 1**

The foregoing Contractor submits this Statement of Qualifications to the CITY OF DUBLIN, OHIO as part of its bid for the above named Project and represents that the information contained herein is complete and accurate to the best of the Contractor’s knowledge. The CITY OF DUBLIN reserves the right to reject any, part of any, or all bids and to waive any informalities and irregularities. The Contractor expressly acknowledges this right of the CITY OF DUBLIN to reject any or all bids or to reject any incomplete or irregular bid. Contractor must furnish all information requested on this Statement of Qualifications. Failure to do so may result in disqualification of the bid. The CITY OF DUBLIN may consider the information submitted on this form in determining the lowest and best Contractor for the Project giving such weight to each item as the CITY OF DUBLIN deems appropriate. The CITY OF DUBLIN may conduct such investigations and request such documents as are deemed necessary to establish the qualifications and financial ability of the Contractor and its subcontractors and suppliers.

The Contractor authorizes the CITY OF DUBLIN and its representatives to contact the owners, design professionals, and others having knowledge (collectively “Contacts”) on projects on which the Contractor has worked—whether listed on this form or not—and authorizes and requests such Contacts to provide the CITY OF DUBLIN with a candid evaluation of the Contractor’s performance. By submitting its bid, the Contractor agrees that if it or any person, directly or indirectly, on its behalf or for its benefit brings an action against any of such Contacts or the employees of any of them as a result of or related to such candid evaluation, the Contractor will indemnify and hold harmless such Contacts and the employees of any of them from any claims whether or not proven that are part of or are related to such action and from all legal fees and expenses incurred by any of them arising out of or related to such legal action. This obligation is expressly intended for the benefit of such Contacts and the employees of each of them. By submitting this form, Contractor agrees that the CITY OF DUBLIN’s determination of which Contractor is the lowest and best Contractor shall be final and conclusive, and that if the Contractor or any person on its behalf challenges such determination in any legal proceeding, the Contractor will indemnify and hold the CITY OF DUBLIN and its employees and agents harmless from any claims included or related to such legal proceeding, whether or not proven, and from legal fees and expenses incurred by the City, its employees, or agents that arise out of or are related to such challenge.

NAME OF PROJECT: **COSGRAY DITCH - PHASE 1**

1. ORGANIZATION

- 1.1 How many years has your organization been in business as a Contractor?
- 1.2 How many years has your organization been in business under its present business name?
 - 1.2.1 Under what other or former names has your organization operated?
- 1.3 If your organization is a corporation, answer the following:
 - 1.3.1 Date of incorporation:
 - 1.3.2 State of incorporation:
 - 1.3.3 President's name:
 - 1.3.4 Vice President's name(s):
 - 1.3.5 Secretary's name:
 - 1.3.6 Treasurer's name:
- 1.4 If your organization is a partnership, answer the following:
 - 1.4.1 Date of organization:
 - 1.4.2 Type of partnership (if applicable):
 - 1.4.3 Name(s) of general partner(s):
- 1.5 If your organization is individually owned, answer the following:
 - 1.5.1 Date of organization:
 - 1.5.2 Name of owner:

1.6 If the form of your organization is other than those listed above, describe it and name the principals:

2. LICENSING

2.1 List jurisdictions and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable.

2.2 List jurisdictions in which your organization's partnership or trade name is filed.

3. EXPERIENCE

3.1 List the categories of work that your organization normally performs with its own forces.

3.2 Claims and Lawsuits (If the answer to any of the questions below is yes, please attach details.)

3.2.1 Has your organization ever failed to complete any work?

3.2.2 Within the last five (5) years has your organization or any of its officers initiated any Claims, had any Claims initiated against it or them, or been involved in or is currently involved in any mediation or arbitration proceedings or lawsuits suits related to any construction project, or has any judgments or awards outstanding against it or them? If the answer is yes, please attach the details for each Claim, including the names and telephone numbers of the persons who are parties, the amount of the Claim, the type of Claim and basis for the Claim, and the outcome.

Note: As used in this document "Claim" means a Claim initiated under the Contract Documents for a project.

3.3 Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract? If the answer is yes, please attach details for each instance, including the names and telephone numbers of the persons who are parties to the contract, and the reason(s) the contract was not completed.

3.4 On a separate sheet, list construction projects your organization has in progress with an original Contract Sum of more than \$ 1,224,000.00, giving the name of project, owner and its telephone number, design professional and its telephone number, contract amount, percent complete and scheduled completion date.

3.4.1 State total amount of work in progress and under contract:

3.5 Provide the following information for each contract your organization has had during the last five (5) years, including current contracts, where the Contract Sum is fifty percent (50%) or more of the bid amount for this Project, including add alternates. If there are more than ten (10) of these contracts only provide information on the most recent ten (10) contracts, including current contracts.

Project And Work	Contract Sum	Owner's Representative & Telephone Number	Engineer's Or Architect's Representative Name & Telephone Number

3.5.1 Provide the following information for each project your organization has had during the last five (5) years, which your organization believes is of comparable or greater size and complexity than the Owner's project. If there are more than five (5) of these projects, only provide information on the most recent five (5) projects, including current projects.

Project And Work	Contract Sum	Owner's Representative & Telephone Number	Engineer's Or Architect's Representative Name & Telephone Number

3.5.2 State average annual amount of construction work your organization has performed during the last five years.

3.5.3 If any of the following members of your organization's management--president, chairman of the board, or any director--operates or has operated another construction company during the last five (5) years, identify the member of management and the name of the construction company.

3.5.4 If your organization is operating under a trade name registration with the Secretary of State for the State of Ohio, identify the entity for which the trade name is registered. If none, state "none."

3.5.5. If your organization is a division or wholly-owned subsidiary of another entity or has another relationship with another entity, identify the entity of which it is a division or wholly-owned subsidiary or with which it has another relationship and also identify the nature of the relationship. If none, state "not applicable."

3.6 On a separate sheet, list the construction education, training and construction experience for each person who will fill a management role on the Project, including without limitation the Project Executive, Project Engineer, Project Manager, and Project Superintendent. For each person listed, include with the other information

the last three projects on which the person worked and the name and telephone number of the Design Professional and the Owner.

4. REFERENCES

4.1 Trade References:

4.2 Bank References:

4.3 Surety:

4.3.1 Name of bonding company:

4.3.2 Name and address of agent:

5. FINANCING

5.1 Financial Statement - Upon submission of your bid you agree to make the following financial information available to the City if requested :

5.1.1 An audited financial statement if available and, if not, a reviewed financial statement, including your organization's latest balance sheet and income statement showing the following items:

Current Assets (e.g., cash, joint venture accounts, accounts receivable, notes receivable, accrued income, deposits, materials inventory and prepaid expenses);

Net Fixed Assets;

Other Assets;

Current Liabilities (e.g., accounts payable, notes payable, accrued expenses, provision for income taxes, advances, accrued salaries and accrued payroll taxes); and

Other Liabilities (e.g., capital, capital stock, authorized and outstanding shares par values, earned surplus and retained earnings).

5.1.2 Name and address of firm preparing attached financial statement, and date thereof.

5.1.3 Is the attached financial statement for the identical organization named on page one?

5.1.4 If not, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsiary).

5.2 Will the organization whose financial statement is attached act as guarantor of the contract for construction?

Certification. The undersigned certifies for the reliance of the Owner that after diligent investigation, to the best of the undersigned's belief, the information provided with this Contractor's Qualification Statement is true, accurate and not misleading.

SIGNATURE

Dated at this ____ day of _____, 2020.

Name of Organization: _____

By: _____ (Print Name)

Signature: _____

Title: _____

_____, being duly sworn, deposes and says that the information provided herein is true and sufficiently complete so as not to be misleading.

Subscribed and sworn before me this ____ day of _____, 2020.

Notary Public

My Commission Expires: _____

SEAL

CONTRACTOR'S ORGANIZATION

General Information

Address: _____

Telephone and Facsimile: _____

E-mail address: _____

Web site: _____

If address given above is a branch office address, provide principal home office address:

Type of Organization

The Contractor's Organization is a:

Corporation

Date and State of Incorporation: _____

Executive Officers: (Names and Addresses) _____

Partnership

Date and State of Organization: _____

Type of Partnership: General Limited Limited Liability Other:

Current General Partners: (Names and Addresses) _____

Joint Venture

Date and State of Organization: _____

Joint Venturers: (For each indicate the name, address and form and state of organization, as well as the managing or controlling Joint Venturer if applicable.) _____

Limited Liability Company

Date and State of Organization: _____

Members: (Names and Addresses) _____

Sole Proprietorship

Date and State of Organization: _____

City or Citys: (Names and Addresses) _____

 Other

Type of Organization: _____

State of Organization: _____

Citys and/or Principals: (Names and Addresses) _____

In addition to the above categories of business entities, indicate whether Contractor's organization is certified as a:

Disadvantaged Business Enterprise Certified by:

 Minority Business Enterprise Certified by:

 Women's Business Enterprise Certified by:

 Historically Underutilized Business Zone Small Business Concern Certified by: _____

LICENSING AND REGISTRATION

Jurisdictions in which Contractor is legally qualified to practice: (Indicate license or registration numbers for each jurisdiction, if applicable, and type of license or registration. Attach separate sheet as necessary.)

In the past five years, has Contractor had any business or professional license suspended or revoked?

Yes No

If yes, describe circumstances on separate attachment, including jurisdiction and bases for suspension or revocation.

CONTRACTOR'S PERSONEL AND APPROACH

Key Construction Personnel. Create and attach Schedule A, listing the Contractor's: 1) Key Construction Personnel who will work on the Project; 2) their construction experience; and, 3) the percentage of time that each is anticipated to devote to the Project.

List types of work generally performed by Contractor's own work force:

Subcontractors

Indicate criteria used in the selection of subcontractors (Indicate if Not Applicable).

- Price
- Financial strength
- Bonding capacity
- Previous experience with Contractor
- Previous experience in industry
- Subcontractor's reputation in industry
- Availability of sufficient personnel
- Safety record
- Other: _____

State Contractor's policy on the bonding of its subcontractors: _____

Describe Contractor's proposed technical and management approach to the Project, including approaches to quality, time and cost control: (Attach additional sheets as necessary.)

CONTRACTOR'S RELEVANT EXPERIENCE

Past Projects List. In the chart below, list at least five construction projects Contractor has worked on in the past five (5) years with project delivery systems similar in size and scope to the one to be employed for this Project. (For Joint Ventures, list each joint venturer's projects separately).

City Name	Project Type	Contract Amount	Completion Date	Contact Name and Number

Current Projects List. In the chart below, list all current projects of the Contractor, including projects not yet underway, approximate dollar value of each and the percentage of completion of each project. (For Joint Ventures, list each joint venturer's projects separately).

City Name	Project Type	Contract Amount	Percentage Complete	Contact Name and Number

Annual Construction Volume. Indicate the annual volume of work completed for the past three years:

Year _____

Year _____

Year _____

In the past five years, has Contractor defaulted, been terminated for cause or failed to complete a construction contract awarded to it? ___ Yes ___ No

If yes, describe circumstances on separate attachment, including dates and owner, and if applicable, Contractor's surety.

In the past five years, has any officer, partner, joint venturer or proprietor of the Contractor ever failed to complete a construction contract awarded to that person or entity in their name or on behalf of another organization? Yes No

If yes, describe circumstances on separate attachment, including dates and City, and if applicable, surety.

Describe all litigation arising from Contractor's active projects or projects worked on within the last five years. (Attach additional sheets as necessary.)

CONTRACTOR'S SAFETY PROGRAM

If Contractor has a written safety program, attach a copy.

Does the Contractor's safety program include instructions on the following:

Safety work practices Yes No

Safety supervision Yes No

Toolbox safety meetings Yes No

Emergency procedures Yes No

First aid procedures Yes No

Accident investigation Yes No

Fire protection Yes No

New workers' orientation Yes No

Do you have a safety officer/department in your company? Yes No

If yes,

Name: _____

Title: _____

Phone: _____

Do you conduct project safety inspections? Yes No

If yes, how often? _____

Who conducts this inspection?

Name: _____

Title: _____

Do you hold project safety meetings for field supervisors? Yes No

If yes, how often? Weekly Bi-weekly Monthly Less often as needed

Do you have in place an instruction program on safety for newly hired or promoted supervisors? Yes No

If yes, please attach a copy of program format.

If craft "toolbox" safety meetings are held, what is their frequency? Weekly Bi-weekly Monthly Less often as needed

Do you have a drug and alcohol testing policy? Yes No

If Yes, attach a copy of the policy.

Provide Contractor's OSHA No. 300 Log and Summary of Occupational Injuries and Illnesses for the past five years.

List all OSHA Citations and Notifications of Penalty, monetary or other, received within the last five years: (Indicate final disposition as applicable. Attach additional sheets as necessary.)

List all safety citations of violations under state law received within the last five years: (Indicate final disposition as applicable. Attach additional sheets as necessary.)

SURETY AND INSURANCE

Surety Company: (Name and Address)

Agent: (Name, Address and Telephone Number)

Total bonding capacity: \$ _____

Limit per project: \$ _____

Available bonding capacity as of this date: \$ _____

CONTRACTOR FINANCIAL INFORMATION

List principal banks used, the approximate value of outstanding loans and general repayment history, as well as the Name, Address and Telephone Number of a contact person:

If requested by the City, provide audited financial statements for the past three (3) years, if available, and if not, then reviewed financial statements, including the information required in Section 5 – Financing, above.

State whether Contractor, or any of the individuals identified in Article 1, has/have been the subject of any bankruptcy proceeding within the last five (5) years.

Yes No

If yes, describe circumstances on separate attachment.

STATEMENT OF POTENTIAL CONFLICTS OF INTEREST

Provide information about any business associations, financial interests or other circumstances that may create a conflict of interest with the City or any other Party known to be involved in the Project.

OTHER INFORMATION

Within the past five years, has Contractor, or any of the individuals identified in Article 1 and/or Schedule A been the subject of any criminal indictment or judgment of conviction for any business-related conduct constituting a crime under state or federal law? __ Yes __ No

If yes, describe circumstances on separate attachment.

Within the past five years, has Contractor or any of the individuals identified in Article 1 and/or Schedule A been the subject of any federal or state suspension or disbarment? __ Yes __ No

If yes, describe circumstances on separate attachment.

Within the past five years, has Contractor, or any of the individuals identified in Article 1 and/or Schedule A been the subject of any formal proceeding or consent order with a state or federal environmental agency involving a violation of state or federal environmental laws? __ Yes __ No

If yes, describe circumstances. (Attach additional sheets as necessary.)

REFERENCES

Provide one additional reference for each of the following categories.

1. City

Name: _____

Address: _____

Telephone No.: _____

Contact Person: _____

2. Architect/Engineer

Name: _____

Address: _____

Telephone No.: _____

Contact Person: _____

3. Subcontractor

Name: _____

Address: _____

Telephone No.: _____

Contact Person: _____

The Undersigned, on behalf of the Contractor, certifies under that the information provided here, or attached to this form, is true and sufficiently complete to the best of the Contractor's knowledge.

CONTRACTOR

Signature_____

Printed Name: _____

Title: _____

Date: _____

III. ADDITIONAL CONTRACT DOCUMENTS

A. CITY OF DUBLIN/CONTRACTOR AGREEMENT

STANDARD AGREEMENT

CITY OF DUBLIN, OHIO

I. INTRODUCTION

This Agreement is entered into on _____, by and between the CITY OF DUBLIN, OHIO (“Owner”), located at 5555 Perimeter Drive, Dublin, Ohio 43017, and _____ (“Contractor”), located at _____ for the CITY OF DUBLIN COSGRAY DITCH - PHASE 1 (“Project”).

THIS DOCUMENT HAS IMPORTANT LEGAL CONSEQUENCES. CONSULTATION WITH AN ATTORNEY IS ENCOURAGED WITH RESPECT TO ITS EXECUTION, COMPLETION AND MODIFICATION.

The Owner, a political subdivision of the State of Ohio, and the Contractor have entered into this Owner-Contractor Agreement (“Agreement”) as of the date set forth above. The Owner and the Contractor agree as follows:

1 WORK.

1.1 The Contractor shall furnish all the labor, services, materials, plant, equipment, tools, scaffolds, appliances, transportation, and all other things (collectively called the “Work”) necessary for the timely and proper completion of the Work described in the Contract Documents for the Project. The Contractor shall provide the Performance and Payment Bonds on the forms and in the manner described in the Contract Documents.

1.2 CLEANUP. Contractor shall cleanup, repair, restore and otherwise return any site or location provided by Owner to the condition in which it was delivered to Contractor. Contractor shall repair, at its sole expense, any property it damages, whether part of the work or not, to a condition acceptable to Owner.

1.3 COMPLETION. The Project shall be finally completed by: Interim Completion: September 18, 2020 - Final Completion: October 30, 2020. The Contractor shall at all times furnish sufficient skilled workers, materials, and equipment to perform the Work in strict conformance with the Contract Documents and to the entire satisfaction of the Owner, so as to complete the Project by the Date for Final Completion. All materials and equipment provided shall be new, free from all defects, fit for the purpose for which intended, and merchantable.

1.4 SUPERVISION. The Contractor shall assign a competent Project Supervisor who shall be present on site. At the Owner’s request and without additional charge to Owner, the Contractor shall replace the Project Supervisor. The Owner’s Representative shall not be responsible for the acts or omissions of the Project Supervisor or his assistants. At a minimum, the Project Supervisor shall be present on site whenever any Contractor or Subcontractor personnel are present on site.

1.5 TAXES AND FEES. Contractor is subject to and responsible for paying fees to obtain all applicable licenses, permits, and other permissions necessary to perform its obligations under this

Contract. Contractor is responsible for paying federal, state, and local taxes. Contractor agrees to withhold all income taxes due or payable under the provisions of Income Tax Ordinances of the Owner, for qualifying wages, salaries, and commissions paid to its employees and further agrees that any of its sub-contractors shall be required to agree to withhold any such income taxes due for services performed under this Contract.

2 CONTRACT DOCUMENTS.

2.1 The Contract Documents consist exclusively of:

- This Agreement Addenda
- Invitation to Bid
- Instructions to Bidders
- Prevailing Wage Rates (if Applicable)
- Proposal
- Bid Schedule
- Performance and Payment Bonds
- Delinquent Personal Property Tax & Noncollusion Affidavit
- Affidavit of Authority (If applicable)
- List of Subcontractors
- Contractor Qualification Statement
- The current version of the CITY OF DUBLIN General Conditions Division 100
- Supplemental or Special General Conditions
- The current version of the CMS, Specification sections 200 through 1000
- Specifications
- Supplemental Specifications
- Notice of Award to Bidder
- Notice to Proceed
- Final Affidavit of Compliance with Prevailing Wages
- Plans and Drawings

3 OWNER'S REPRESENTATIVE.

3.1 The City Engineer and/or his designee is the Owner's Representative with respect to all matters involving the Owner.

3.2 Except as specifically stated to the contrary elsewhere in this Agreement, the Contractor shall direct all communications to the Owner through the Owner's Representative, although the City Manager and Fiscal Officer of the Owner are also authorized to send written communications to the Contractor.

3.3 The Owner's Representative will monitor the progress of the Contractor's Work and will conduct regular inspections of the progress of the Work as provided in the Contract Documents. Such inspections shall not relieve the Contractor of any of its obligations under the Contract Documents.

3.4 The Contractor shall at all times provide the Owner's Representative access to the Work.

4 TIME FOR COMPLETION AND PROJECT COORDINATION.

4.1 Project Time Schedule. The Owner anticipates that Work on the Project will begin upon its issuance of a Notice to Proceed and be completed by Interim Completion: September 18, 2020 - Final Completion: October 30, 2020, unless the Owner and Contractor agree to different commencement and completion dates.

4.2 Contractor is responsible for scheduling its subcontractors and for any delay resulting from their performance.

4.3 TIME IS OF THE ESSENCE. THE DATES IN THE PROJECT TIME SCHEDULE ARE OF THE ESSENCE OF THIS AGREEMENT. THE CONTRACTOR SHALL PROSECUTE ITS WORK IN ACCORDANCE WITH THE PROJECT TIME SCHEDULE, INCLUDING ANY AMENDMENTS THERETO.

5 DELAYS AND ACCELERATIONS.

5.1 NOTICE OF DELAYS. The Contractor shall give the Owner written notice of any delay affecting its Work within 24 hours of the commencement of the delay as required in 104.03.B of the General Conditions. The failure to give the required notice or include the required "NOTICE OF DELAY" language shall constitute an irrevocable waiver of the Contractor's right to seek an extension of time and/or additional compensation/damages for the delay. The Owner, in its sole and reasonable discretion, shall determine whether a delay shall entitle the Contractor to an extension of time, additional payment, or both.

5.2 ACCELERATION OF THE WORK. If the Contractor fails to perform as required by the Contract schedule, the Owner may require the Contractor to accelerate its Work by adding workers or working additional shifts, extended shifts or overtime, so that the Work is in final form before the Date for Final Completion. If the Owner requires the Contractor to accelerate its Work, the Contractor shall take the required action within two days of the Notice. If the acceleration is not due to fault of the Contractor, Owner shall issue a Change Order increasing the Contract Sum to pay the Contractor for the Contractor's additional costs of accelerating its Work so that the Work is in final form before the Date for Final Completion. If there is a dispute as to whether the Contractor is entitled to a Change Order for accelerating its Work, the Contractor shall proceed to accelerate its Work without waiting for a Change Order or payment of any additional compensation, but may reserve its right to make a claim against the Owner for its additional costs incurred in accelerating its Work. The Contractor's additional costs for accelerating its Work shall be determined in accordance with Paragraph 5.2.2.

5.2.1 OWNER'S OBLIGATION TO PAY. The Owner shall pay the Contractor, as provided in this Paragraph, for the Contractor accelerating its Work so that its Work is in final form before the Date for Final Completion so long as the acceleration is not required as a result of the Contractor's failure to stay on schedule. The Owner shall not be required to compensate the Contractor for accelerating its Work based on the Contractor's own decision so that the Work is in final form by the Date for Final Completion.

5.2.2 COMPENSATION FOR ACCELERATION OF THE WORK. To the extent that the Owner requires the Contractor to accelerate its Work and is obligated to pay under Section 5.2.1, the Owner shall pay the Contractor for the Contractor's additional costs of accelerating its Work, as determined in accordance with this Paragraph. The additional costs of accelerating the Work shall be (a) any premium for overtime, additional shift work, or extended shift work, (b) the cost of any additional supervision required by the acceleration,

(c) out of pocket cost of any additional equipment required for the acceleration, and (d) overhead, including home office overhead, and profit equal to ten percent (10%) of the total amount of items (a) and (b) for which additional compensation is permitted under this Paragraph. The foregoing shall be the only additional compensation and/or damages the Contractor shall be entitled to receive for accelerating its Work so that it is complete before the Date for Final Completion. As a condition precedent to its recovery of additional compensation, the Contractor shall provide the Owner with full information about the costs of accelerating its Work in the form and format requested by the Owner.

6 CORRECTIVE ACTION.

6.1 If the Owner determines that the Contractor is not cooperating or coordinating its work properly with its subcontractors, not supplying sufficient skilled workers, not cleaning up the Project, not furnishing the necessary materials, equipment, or any temporary services or facilities to perform the Work in strict conformance with the Contract Documents, or the Contractor is not on schedule, or is not otherwise performing its obligations under the Contract Documents, THE CONTRACTOR SHALL IMMEDIATELY, AND IN NOT LESS THAN FORTY-EIGHT (48) HOURS AFTER NOTICE OF SUCH DETERMINATION, OR SUCH LESSER TIME AS MAY BE PROVIDED IN THE CONTRACT DOCUMENTS, (1) COMMENCE SUCH ACTION AS IS NECESSARY TO CORRECT THE DEFICIENCIES NOTED BY THE OWNER, (2) PROCEED TO USE ITS BEST EFFORTS TO CORRECT SUCH DEFICIENCIES WITHIN THIRTY (30) DAYS OF SUCH NOTICE OR BY THE DEADLINE FOR COMPLETION OF THE PROJECT SET FORTH IN THIS AGREEMENT WHICHEVER IS SOONER AND/OR, (3) IF THE OWNER INSTRUCTS THE CONTRACTOR TO TAKE SPECIFIED CORRECTIVE ACTION, SHALL IMMEDIATELY TAKE SUCH CORRECTIVE ACTION, including but not limited to increasing the number of skilled workers, providing temporary services or facilities, and cleaning up the Project. Such corrective action shall be taken and continued uninterruptedly without waiting to initiate any dispute under Paragraph 11 of this Agreement or the resolution of any dispute initiated under such paragraph.

7 CONTRACT SUM. The lump sum Contract Sum to be paid by the Owner to the Contractor, as provided herein, for the satisfactory performance and completion of the Project and all of the duties, obligations and responsibilities of the Contractor under this Agreement and the other Contract Documents will be \$. The Contract Sum includes all federal, state, county, municipal, and other taxes imposed by law, including but not limited to any sales, use, and personal property taxes payable by or levied against the Contractor because of the Work or the materials incorporated into the Work. The Contractor shall pay any such taxes.

8 LIQUIDATED DAMAGES.

8.1 The Contractor shall have its Work completed by the Completion Date stated in Paragraph 1.3; the timeline may be varied following award of the contract based upon the Contractor's ability to perform the work on a different timeline acceptable to the Owner. By entering into this Agreement, the Contractor agrees that the period for performing the Work is reasonable and that the Contractor's Work can be substantially complete by the date stated in this Agreement.

8.2 If the Contractor does not have its Work on the Project complete by the Completion Date or as otherwise agreed by the parties, the Contractor will pay the Owner (and the Owner may set off from sums coming due the Contractor) liquidated damages as set forth in 108.07 of the General Conditions.

8.3 The Contractor acknowledges by signing this Agreement with the Owner that the amount of liquidated damages represents a reasonable estimate of the actual damages the Owner would incur if the work is not substantially complete by the foregoing date and that the damages that may result from the failure to substantially complete the work by the foregoing date are uncertain and difficult to ascertain. These liquidated damages are damages for loss of use of the Project, and the Contractor in addition to the liquidated damages will be obligated to indemnify and hold the Owner harmless from any claims, and if the Work on the Project is accelerated because of delay, for all costs related to the acceleration of the Work, as provided in the Contract Documents. In addition to such Liquidated Damages, the Contractor shall indemnify, defend and hold the Owner and its employees and agents harmless from any and all claims, whether or not such claims are proven, and from all costs and expenses incurred, as a result of or related to such claims, including but not limited to attorneys' and consultants' fees and expenses, provided that such claims arise out of or are related to the Contractor's failure to Substantially Complete its Work by its Date for Substantial Completion. These Liquidated Damages are in addition to any other remedies available to the Owner under the Contract Documents.

9 LIMITATION AND LIABILITY.

9.1 The Owner's total liability under this Agreement shall be limited to the amount set forth in the Finance Director's certificate accompanying this Agreement. Under no circumstances shall the elected officials, officers, employees, council members, or agents of the Owner be personally liable for any obligations or claims arising out of or related to this Agreement.

10 PAYMENT

10.1 APPLICATIONS FOR PAYMENT. Payment applications shall be submitted on a monthly basis and shall reflect the amount of work completed as of the date the application for payment is submitted. On or before Completion, the Contractor shall submit to the Owner, an itemized payment application for such period in the following format and with one copy of the following documentation: 1) Invoice for work performed and materials and equipment provided for the previous pay period; 2) Current list of the Contractor's Subcontractors and suppliers showing their respective contract sums, amount paid, and amount due; 3) Contractor's Affidavit of Release of Liens with and lien releases in the format provided by the Owner for all the Contractor's Subcontractors and suppliers current through the date of the Contractor's previous Application for Payment; 4) Such other supplemental information as the Owner may require. Such other information may include a schedule of all materials and equipment stored on site.

10.2 The Owner may withhold payment in whole or in part, and may demand that the Contractor refund amounts previously paid, to protect the Owner from loss because of: 1) The Contractor's default or failure to perform any of its obligations under the Contract Documents, including but not limited to: failure to provide sufficient skilled workers; Work, including equipment or materials, which is defective or otherwise does not conform to the Contract Documents; failure to conform to the Project Time Schedule; and failure to follow the directions of or instructions from the Owner; 2) The Contractor's default or failure to perform any of its obligations under another contract that it has with the Owner; 3) The filing of third party claims, or reasonable evidence that third party claims have been or will be filed; 4) The Work has not proceeded to the extent set forth in the application for payment; 5) Any representations made by the Contractor are untrue; 6) The failure of the Contractor to make payments to its Subcontractors; 7) Damage to the Owner's property or the property of another person or laborer; 8) The determination that there is a substantial possibility that

the Work cannot be completed for the unpaid balance of the Contract Sum; and/or 9) Liens filed or reasonable evidence indicating the probable filing of such liens.

10.3 The Owner will pay the Contractor within 30 days after receipt of the Contractor's payment application, provided that the payment application has been properly submitted on a timely basis and is accompanied by all of the required documentation. The Owner may establish a cut-off date for the submission of the payment application.

11 RETAINAGE.

11.1 AMOUNT OF PAYMENTS. Subject to Paragraph 8.1, the amount of the payments to the Contractor shall be determined in accordance with the following paragraphs:

11.2 PAYMENTS. Payments under the contract shall be made at the rate of 95% of the amount set forth in the Contractor's payment application and approved by the Owner until the Work is 50% complete. When more than fifty percent (50%) of the Work has been completed, the amount retained may be reduced at the City's sole discretion. The Engineer may also, at any time, increase retainage by any amount needed to protect the City's interests with respect to any incomplete, defective or unsatisfactory Work; costs or damages incurred by the City that are subject to the Contractor's indemnification obligations; or back charges that the City may assess against the Contractor.

11.3 DOCUMENTATION. Upon request, the Contractor immediately shall supply the Owner with such information as may be requested so as to verify the amounts due to the Contractor, including but not limited to original invoices for materials and equipment and documents showing that the Contractor has paid for such materials and equipment, and so as to verify that amounts due laborers, subcontractors, and materialmen have been paid to them.

11.4 FINAL PAYMENT.

11.4.1 The final application for payment shall be itemized, and the Contractor shall ensure that the final application for payment shall contain one (1) copy of each of the following documents, if not previously delivered to the Owner: 1) All items from Paragraph 10.1; 2) Consent of the Contractor's Surety to Payment; 3) An assignment to the Owner of all warranties obtained or obtainable by the Contractor from manufacturers and suppliers of equipment and materials incorporated into the Work by written instrument of assignment in a form acceptable to the Owner; and 4) Such other documentation as required by the Contract Documents, the Owner, or applicable law.

11.4.2 The making of Final Payment by the Owner shall not constitute a waiver of Claims by the Owner for the following: 1) Liens, Claims, security interests, or encumbrances arising out of the Contract Documents that are unsettled; 2) Failure of the Work to comply with the requirements of the Contract Documents; 3) Terms of special warranties required by the Contract Documents; 4) Claims for Indemnification; 5) Claims about which the Owner has given the Contractor written notice; or 6) Claims arising after Final Payment.

11.5 ESCROW ACCOUNT. The Owner and the Contractor agree that no escrow account shall be required in connection with this Agreement and that retained funds will not earn interest.

12 CHANGE ORDERS.

12.1 A Change Order is a written instrument signed by the Owner and the Contractor stating their agreement upon a change in the Work, the amount of the adjustment or the method for

computing the amount of the adjustment of the Contract Sum, if any, and the extent of the adjustment in the Project Time Schedule, if any.

13 GENERAL.

13.1 MODIFICATION. No modification or waiver of any of the terms of this Agreement or of any other Contract Documents shall be effective against a party unless set forth in writing and signed by or on behalf of a party, which in the case of the Owner shall require the signature of the Owner's Representative acting under the authority of a specific resolution of the Owner. Under no circumstances shall forbearance, including the failure or repeated failure to insist upon compliance with the terms of the Contract Documents, constitute the waiver or modification of any such terms. The parties acknowledge that no person has authority to modify this Agreement or the other Contract Documents or to waive any of its or their terms, except as expressly provided in this Paragraph.

13.2 ASSIGNMENT. The Contractor may not assign this Agreement without the written consent of the Owner, which the Owner may withhold in its sole discretion.

13.3 THIRD PARTIES. Nothing contained in this Agreement shall create a contractual relationship with or a cause of action in favor of a third party against either the Owner or the Contractor.

13.4 LAW AND JURISDICTION. All questions regarding the validity, intention, or meaning of this Agreement or any modifications of it relating to the rights and obligations of the parties shall be construed and resolved under the laws of the State of Ohio. Any suit, which may be brought to enforce any provision of this Agreement or any remedy with respect hereto, shall be brought in the Common Pleas Court of Franklin County, Ohio, and each party hereby expressly consents to the jurisdiction of such court.

13.5 STATUTE OF LIMITATIONS. Regardless of any provision to the contrary, the statute of limitations with respect to any defective or non-conforming Work that is not discovered by the Owner shall not commence until the discovery of such defective or non-conforming Work by the Owner.

13.6 NOTICES. Notices, requests, or demands by either party shall be in writing, unless otherwise expressly authorized, and shall be personally served, forwarded by expedited messenger service, sent by facsimile transmission, or be given by registered or certified mail, return receipt requested, postage prepaid, and, in the case of the Owner, addressed to the address/FAX number set forth at the beginning of this Agreement marked "Urgent, deliver to Owner's Representative/Designee," and, in the case of the Contractor, addressed to its address/FAX number set forth at the beginning of this Agreement. Any party may change its address/FAX number by giving notice hereunder. All notices, requests, and demands shall be deemed received upon receipt in the case of personal delivery or delivery by expedited messenger service, including leaving the notice at the address provided herein during normal business hours; upon the expiration of forty-eight (48) hours from the time of deposit in the United States mail; or, in the case of a notice given by facsimile transmission, upon the expiration of twenty-four (24) hours after the transmission is sent.

13.7 CONSTRUCTION. The parties acknowledge that each party has reviewed this Agreement and the other Contract Documents and has voluntarily entered into this Agreement. Accordingly, the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Agreement, the other Contract Documents, or any amendments or exhibits to it or them.

13.8 APPROVALS. Except as expressly provided herein, the approvals and determinations of the Owner shall be subject to the sole discretion of the Owner and will be valid and binding on the Contractor, provided only that they be made in good faith, i.e., honestly. If the Contractor challenges any such approval or determination, the Contractor shall have the burden of proving by clear and convincing evidence that it was not made in good faith.

13.9 PARTIAL INVALIDITY. If any term or provision of this Agreement is found to be illegal, unenforceable, or in violation of any laws, statutes, ordinances, or regulations of any public authority having jurisdiction, then, notwithstanding such term or provision, this Agreement shall remain in full force and effect, and such term shall be deemed stricken; provided this Agreement shall be interpreted, when possible, so as to reflect the intentions of the parties as indicated by any such stricken term or provision.

13.10 COMPLIANCE WITH LAWS AND REGULATIONS. The Contractor, at its expense, shall comply with all applicable federal, state, and local laws, rules, and regulations applicable to the Work. Including, but not limited to Ohio's Prevailing Wage law if applicable.

13.11 PROJECT SAFETY. The Contractor shall follow all applicable safety and health regulations during the progress of the Project and shall monitor all of its employees and its subcontractors for compliance with such safety and health regulations. In undertaking the responsibilities set forth in this Paragraph, the Contractor does not assume any duty or responsibility to the employees of any Subcontractor or supplier, regardless of tier. The Owner assumes no responsibility for the development, review, or implementation of any project safety plan or for Project safety and has no authority to direct the means and methods of the Contractor.

13.12 EQUAL OPPORTUNITY. Contractor agrees that, in the hiring of employees for the performance of work under the Contract or any subcontract, no contractor, subcontractor, or any person acting on a contractor's or subcontractor's behalf, by reason of race, creed, sex, disability or military status as defined in section 4112.01 of the Revised Code, or color, shall discriminate against any citizen of the state in the employment of labor or workers who is qualified and available to perform the work to which the employment relates. Contractor further agrees that neither it, its subcontractors, or any person on the Contractor's or subcontractor's behalf, in any manner, shall discriminate against or intimidate any employee hired for the performance of work under the contract on account of race, creed, sex, disability or military status as defined in section 4112.01 of the Revised Code, or color. That there shall be deducted from the amount payable to the Contractor by the Owner under this Agreement a forfeiture of twenty-five dollars (\$25.00) as required by O.R.C. Section 153.60 for each person who is discriminated against or intimidated in violation of this Agreement. That this Agreement may be canceled or terminated by the Owner and all money to become due hereunder may be forfeited for a second or subsequent violation of the terms of this section of this Agreement.

13.13 USE OF OWNER'S FACILITIES. The Contractor shall ensure that neither its employees, nor its Subcontractor's or material supplier's employees, regardless of tier, do any of the following without the express prior written consent of the Owner: use the Owner's cafeteria, rest rooms, or phones; use or bring any alcoholic beverages, controlled substances, or firearms on any property owned by the Owner. The Owner will not tolerate any such actions and any such action observed or made known to the Owner shall be dealt with severely.

13.14 ETHICS. By signing and entering into this agreement with the Owner, the Contractor represents that it is familiar with all applicable ethics law requirements, including without limitation

Sections 102.04 and 3517.13 of the O.R.C., and certifies that it is in compliance with such requirements. The Contractor understands that failure to comply with the ethics laws is, in itself, grounds for termination of this contract and may result in the loss of other contracts with the Owner.

13.15 PROPERTY TAX AFFIDAVIT. The Contractor's affidavit given under ORC Section 5719.024 is incorporated herein.

13.16 ENTIRE AGREEMENT. This Agreement and the other Contract Documents constitute the entire agreement among the parties with respect to their subject matter and will supersede all prior and contemporaneous, oral or written, agreements, negotiations, communications, representations, and understandings with respect to such subject matter, and no person is justified in relying on such agreements, negotiations, communications, representations, or understandings.

CITY OF DUBLIN, OHIO

By: _____
Its: _____
Date: _____

By: _____
Its: _____
Date: _____

APPROVED AS TO FORM:

Date: _____

JENNIFER READLER
CITY OF DUBLIN, CITY ATTORNEY

CERTIFICATE OF AVAILABILITY OF FUNDS

I, Matthew Stiffler, hereby certify that I am the fiscal officer for the CITY OF DUBLIN, OHIO and that the amount of money to wit \$ required to meet the cost of the attached Contract between the City and has been or will be, before the ordering of any materials, lawfully appropriated for the purpose of said Contract and the money so appropriated is on deposit or in process of collection to the credit of the appropriate fund free from any previous encumbrances. Moneys due in excess of the Contract Sum and any Contingency amount assigned thereto shall require an additional and separate Fiscal Officer's Statement of Availability which shall not be given unless the Contract adjustment is directly attributable to one of the express methods for increasing the Contract Sum under the Contract Documents; and, such process is completed in the manner required by the Contract Documents.

Date

Matthew Stiffler
Interim Finance Director

B. CITY OF DUBLIN GENERAL CONDITIONS DIVISION 100

City of Dublin Division of Engineering General Condition Division 100 can always be found at:

<https://dublinohiousa.gov/dev/dev/wp-content/uploads/2020/01/General-Conditions-Section-100-1-22-19.pdf>

The General Condition Division 100 will also be posted with the project on the City of Dublin's website where the project documents are available for download.

C. SUPPLEMENTAL GENERAL CONDITIONS

THERE ARE NO SUPPLEMENTAL GENERAL CONDITIONS FOR THE CITY OF DUBLIN COSGRAY DITCH - PHASE 1.

D. PROPOSAL NOTES

WORKING HOURS

The Contractor is permitted to work between 7:00 A.M. and 7:00 P.M., Monday through Saturday. Permission to work on Sunday and holidays must be requested in writing and approved by the City Engineer.

GEOTECHNICAL INFORMATION

A geotechnical report for this project is included in the bid package.

TEST HOLES

The Contractor is encouraged to dig test holes at the project site prior to making their bid to familiarize themselves with site subsurface conditions. The bidder shall take into account any difficulty they perceive in constructing the project due to rock, ground water, weak soils, topsoil, etc. No test holes will be permitted on private property without the owner's permission. Test holes within the right of way will require a right of way permit.

INSPECTION

All inspections shall be provided by the City of Dublin.

COORDINATING WITH UTILITIES

It is the Contractor's responsibility to coordinate their work with the private utilities as required. The utility owner may be required to brace, temporarily support, or relocate their respective utilities so that the proposed roadway can be constructed.

CONSTRUCTION LAYOUT

All construction layout stakes for this roadway project shall be provided by the Contractor. All work shall be performed by and under the guidance of a Professional Surveyor currently licensed in the State of Ohio.

ITEM 203 EXCAVATION

All excavation shall be considered as unclassified, including rock if encountered. No additional compensation will be made for rock excavation.

DEWATERING

The cost of any dewatering operations required for the construction of the storm sewers shall be included in the price bid for the various items. Dewatering is to be done per the Ohio EPA General Construction permit and the SWPP plan.

STORAGE OF EQUIPMENT AND MATERIALS

No equipment or materials, including pipe, shall be stored within thirty (30) feet of any intersecting street or driveway. Nor shall any equipment or materials be stored on any street. During non-working hours, storage of equipment shall comply with these same requirements and shall not in any way relieve the Contractor of their legal responsibilities or liabilities for the safety of the public.

CONSTRUCTION MATERIALS

No alternates or deviations shall be permitted from those construction materials shown the plans.

SURVEY MONUMENTATION

The contractor shall carefully preserve bench marks, property corners, reference points, stakes and other survey reference monuments or markers. In cases of willful or careless destruction, the contractor shall be responsible. Resetting of markers shall be performed by an Ohio Professional Surveyor as approved by the City Engineer at the contractor's expense.

CONSTRUCTION NOISE

Any device shall not be operated at any time in such a manner that the noise created substantially exceeds the noise customarily and necessarily attendant to the reasonable and efficient performance of such equipment.

COUNCIL RESOLUTION

This project is scheduled to go before City Council for bid acceptance on Monday, June 8, 2020.

COMPLETION

The completion dates for this project are:

Interim Completion Date: September 18, 2020

Interim completion shall be defined as follows:

- Structure removed.
- Flow in the existing ditch diverted into the new permanent and temporary channels.
- The new channel and floodplain beltwidth at final grade including topsoil.
- Manholes, storm pipe, flared-end section and rock channel protection installed.
- Rock substrate and bank reinforcement installed.

Final Completion Date: October 30, 2020

Final completion includes the remainder of the project including but not limited to:

- Topsoil
- Hydroseeding & seeding and mulching
- Trees, shrubs and live stakes
- Punch list items

Should the Contractor fail to meet the final completion date, liquidated damages could be assessed according to Section 108.07 of the General Conditions for each day.

E. GEOTECHNICAL SPECIFICATIONS



February 17, 2020

EMH&T, Inc.
5500 New Albany Road
Columbus, OH 43054

Attention: Mr. Michael R. Brehm, P.E.

Reference: **Preliminary Geotechnical Exploration Report
Shier-Rings Rd. Realignment, Shier-Rings/Avery Rd. Intersection Improvements,
and Old Avery Road Relocation**
Dublin, Ohio
S&ME Project Numbers: 1117-19-056/057

Mr. Brehm:

In accordance with our revised proposal dated October 4, 2018, which was authorized by EMH&T Task Order No. 1 on August 12, 2019, S&ME, Inc. (S&ME) is herewith submitting this Preliminary Geotechnical Exploration Report for the above referenced roadway realignment and improvement projects in Dublin, Ohio (see Vicinity Map, Plate 1 of Appendix A). These projects include the realignment of Shier-Rings Road, the proposed University Boulevard alignment, improvements to and widening of the Shier-Rings/Avery Road intersection, and associated hydraulic features (a new drainage ditch, a 3-sided precast culvert beneath Shier-Rings Rd./University Boulevard, and a box culvert extension along existing Shier Rings Road) and a storm sewer along University Boulevard.

This letter summarizes the information obtained from the borings and laboratory test results, the results of analyses, and, based on currently available plan and profile information, presents preliminary geotechnical recommendations and discussions associated with the design and construction of the proposed earthen embankments, the 2 new precast culverts, and the roadway subgrade and pavement section for the new or improved/widened roadways.

◆ Introduction

S&ME understands that these proposed improvements are essentially split into two parts. Project #1 will include construction of a new roadway (University Blvd.) to connect existing Eiterman Road with Shier-Rings Road. This new alignment begins approximately 1,800 feet north of the current Shier-Rings-Eiterman intersection and extends south-eastward to connect with Shier-Rings Road at approximately 1,400 feet west of the existing Shier-Rings/Avery Road intersection. The new alignment will include some stub connections with existing Eiterman and Shier-Rings Roads, several roundabout intersections, and approximately 2,600 feet of new sanitary sewer (up to 15 feet deep) along the University Blvd. alignment. The installation of a new, 3-sided concrete culvert is also planned beneath the south side of the roundabout at University Blvd. and existing Shier-Rings Road.

Project #2 will include widening of Shier-Rings Road on either side of existing Avery Road, along with other improvements to the intersection. A roundabout was initially planned at this intersection; however, following the completion of our field work, the project was modified to consider improvements consisting of widening and the addition of turn lanes. An approximate 150-foot-long extension of a precast box culvert is also proposed along the south side of Shier-Rings Road at the roundabout intersection with the connector road to the City of Dublin



school bus facility. This culvert is located near the western end of Project #2 and the east end of Project #1. Project #2 also includes realigning Cosgray Ditch to the southwest of proposed University Boulevard and the north of existing Shier-Rings Road, and the relocation of the intersection of Old Avery Road and Shier-Rings Road roughly 100 feet west. We now understand that approximately 1,700 feet of new pavement for realigned Old Avery roadway is planned north of Shier-Rings Road. No explorations were performed for this section of roadway.

◆ Exploration

Between November 22 and December 10, 2019, a total of twenty-two (22) borings were drilled for these two projects. The borings were advanced to termination depths ranging from 7.5 to 25 feet below the existing ground or pavement surface. A Plan of Borings showing the approximate locations of the borings is included as Plate 2 of Appendix A. S&ME obtained the latitude and longitude of the completed borings using a handheld, sub-meter GPS. These coordinates were then provided to EMH&T, who then provided S&ME with the stationing, offset, and ground surface elevation at these boring locations. This information is included on the boring logs provided in Appendix A as Plates 4 through 25.

The borings were advanced by an ATV-mounted drill rig using either a 3¼-inch hollow-stem auger or a 4½-inch continuous-flight auger. Disturbed, but representative, soil samples were procured by lowering a 2-inch O.D. split-barrel sampler to the bottom of the boring and then driving the sampler into the soil with blows from a 140-pound hammer freely falling 30 inches (ASTM D 1586 – Standard Penetration Test, SPT). SPT sampling was performed at intervals ranging from continuously to 5-foot spacing depending on the location and purpose of the boring. Three (3) feet of continuous SPT sampling was performed below the subgrade level anticipated at the time of the field work, and six (6) feet of continuous SPT sampling was attempted just below the approximate proposed flow line in the borings drilled for the proposed 3-sided box culvert. SPT samples were examined immediately after recovery and representative portions were preserved in airtight glass jars. Groundwater observations were made as the borings were being drilled, and measurements of any accumulated groundwater were made upon completion of each boring. The borings were then backfilled with a mixture of soil cuttings and bentonite chips and a plastic hole plug device. At all locations where the borings were advanced through the existing pavement, the surface of the pavement was repaired with cold asphalt patch.

In the field, experienced personnel performed the following specific duties: preserved all recovered samples; prepared a log of each boring; made seepage and groundwater observations; obtained hand-penetrometer measurements in soil samples exhibiting cohesion; and coordinated with the Project Engineer so that the program of explorations could be modified, if necessary, because of unanticipated conditions. All samples were transported to the laboratory of S&ME for further identification and testing.

◆ Laboratory Testing Program

All recovered soil samples were visually identified in our laboratory, with select representative soil samples also being tested for natural moisture content, liquid/plastic limit determinations, and grain-size analyses. Sulfate testing was performed on selected samples of anticipated subgrade soil from along the new alignment.

Based on the results of the laboratory testing program, soil descriptions contained on the field logs of the borings were modified, if necessary, and laboratory-corrected boring logs are included as Plates 4 through 25 in Appendix A. Shown on these logs are: descriptions of the soil stratigraphy encountered; depths from which samples were preserved; sampling efforts (blow-counts) required to obtain the specimens in the borings; calculated N_{60} values; laboratory testing results; seepage and groundwater observations; and, values of hand-penetrometer



measurements made in soil samples exhibiting cohesion. For your reference, hand-penetrometer values are roughly equivalent to the unconfined compressive strength of the cohesive fraction of the soil sample.

Soils have been classified in general accordance with Section 603 of the ODOT Specifications for Geotechnical Explorations (SGE) and described in general accordance with Section 602. An explanation of the symbols and terms used on the boring logs, definitions of the special adjectives used to denote the minor soil components, and information pertaining to sampling and identification are presented on Plates 3 of Appendix A. ODOT classifications, including Group Indices, determined from the results of the laboratory testing program are also provided on the boring logs.

◆ Findings

Surficial Materials

Table 1 below summarizes the thicknesses of existing pavement encountered in borings performed in existing roadways.

Table 1: Existing Pavement Thicknesses

Boring No.	Roadway	Station	Offset	Asphalt Thickness (Inches)	Granular Base (Inches)
B-101	Prop. University Blvd./Ex. Eiterman Rd.	167+40	4' Lt	5¼	10½
B-102	Ex. Eiterman Road	91+96	10' Rt	9	*
B-111	Shier-Rings Road	204+38	13' Rt	7½	9½
B-201	Shier-Rings Road	209+27	9' L	10	6½
B-203	Shier-Rings Road	214+07	7' L	9¼	7
B-206	Avery Road	16+24	28' Rt	7	6
B-208	Shier-Rings Road	226+19	7' L	10	7

* A definite layer of granular base was not identified. The boring recorded 2.3 feet of A-1-b granular fill soil beneath the asphalt.

The remaining fifteen borings encountered 3 to 10 inches of rootmat and topsoil at the ground surface.

General Subsurface Conditions

Beneath the surficial materials, seven (7) of 22 borings encountered 1.5 to 5.4 feet of existing fill or possible fill, consisting primarily of stiff to hard brown and gray SILT AND CLAY (A-6a) and SILTY CLAY (A-6b). Medium-stiff to very-stiff CLAY (A-7-6) fill was present to the depths of 3.0 and 3.5 feet in the existing fill embankments in which Borings B-204 and B-205 were performed. Boring B-102 encountered 1.5 feet of stiff to very-stiff brown and gray SANDY SILT (A-4a) beneath the A-1-b existing fill noted in Table 1 in the previous section. It should also be noted that the existing fill encountered in Boring B-104 contained brick fragments.

Below surficial materials and existing fill, the uppermost natural soils encountered in 17 of the 22 borings consisted of 1.5 to 6.6 feet of stiff to hard brown and dark-brown mottled with gray CLAY (A-7-6). The natural moisture content of this soil ranged from 19% to 30%, the Liquid Limit ranged from 41% to 57%, and the Plasticity Index (PI) ranged from 23% to 36%. Four (4) borings were terminated in this stratum.



Beneath the A-7-6 soil, the borings encountered 1.5 to 10.4 feet of primarily stiff to hard brown, brown mottled with gray, and gray SILT AND CLAY (A-6a) or SILTY CLAY (A-6b). The moisture content of these soils ranged from 11% to 20%, the Liquid Limit ranged from 27% to 40%, and the PI ranged from 11% to 21%. Four (4) borings did not encounter this layer, and five (5) borings were terminated in these soils.

The remainder of the natural soils consisted primarily of very-stiff to hard brown becoming gray SANDY SILT (A-4a) which contained discontinuous 2-foot to 5-foot thick zones and pockets of medium-dense to very-dense GRAVEL WITH SAND AND SILT (A-2-4), GRAVEL WITH SAND SILT AND CLAY (A-2-6), GRAVEL WITH SAND (A-1-b), and COARSE AND FINE SAND. The moisture content of these soils ranged from 5% to 16%, and the PI was no greater than 10%.

Scour Zone Gradation Test Results

Laboratory grain-size testing was performed on the SPT samples recovered from the continuously sampled scour zone between 6 and 12 feet below the ground surface at Borings B-109 and B-110, which were drilled near the inlet and outlet ends of the proposed 3-sided culvert which will carry the proposed Shier-Rings Road over realigned Cosgray Ditch in Dublin, Ohio. The results of these grain-size tests were previously submitted to EMH&T on January 6, 2020. A copy of this submission is included in Appendix C at the rear of this submission.

Groundwater

Groundwater seepage was noted in seven (7) of the 22 borings between the depths of 1.5 and 12.5 feet below the ground surface. At the completion of drilling, water had accumulated in only 2 of these borings, with the depth to water being measured as 0.7 and 1.1 feet. The remaining 20 borings were "dry" at completion.

Soil Sulfate Test Results

Sulfate content testing (ODOT Supplement 1122) was performed on soil samples obtained from the approximate proposed pavement subgrade level in six (6) borings. The results of these tests measured sulfate contents ranging from 16 to 239 ppm. These results are well below the threshold value of 5,000 ppm identified by ODOT Geotechnical Bulletin GB1 as the sulfate content concentration above which chemical stabilization should not be performed. The results of these tests are provided on the log of the borings in Appendix A.

Topsoil Testing – Relocated Cosgray Ditch

EMH&T requested that samples of topsoil be obtained at the locations of three (3) borings being drilled along the proposed alignment of Cosgray Ditch, and these samples be submitted for agronomic testing. S&ME obtained bulk samples from Borings B-209 through B-211, and the results of these tests were previously submitted to EMH&T on December 31, 2019. Copies of these results are included in Appendix D at the rear of this submission.

◆ Preliminary Recommendations and Discussions

The remainder of this report will present preliminary geotechnical recommendations and discussions based on the roadway plan and profile drawings and structure site plan sheets provided by EMH&T at the time of this document.



Project #1: Proposed University Blvd and Realigned Shier-Rings Road

Pavement Subgrade Support Parameters

- Based on the results of the laboratory testing, we recommend that new pavement design for this project be based on a California Bearing Ratio (CBR) value of 5%, and a Resilient Modulus value (M_R) value of 6,000 psi.
- If a global subgrade stabilization program, performed in accordance with ODOT Construction and Material Specifications (CMS) Item 206 and designed in accordance with ODOT CMS Item 206.06 and Supplement 1120, is decided to be implemented (see additional discussion in the "Chemical Subgrade Stabilization" section below), the Subgrade Resilient Modulus used during flexible pavement design may be increased to 8,160 psi.
- These subgrade support values may be used during pavement design for this project provided that the entire proposed pavement subgrade is prepared in strict accordance with Item 204 of the ODOT CMS, and that all borrow soil placed within 3 feet of the final subgrade level of the new roadway is capable of providing average subgrade support parameters which meet or exceed the above values.

Subgrade Remediation

- Based on the results of the ODOT GB1 analysis (see Appendix B) and the currently available profile information, only 2 of the 11 borings encountered soil at the proposed subgrade which would be considered as potentially unstable. As such, either an "excavate and replace" or chemical subgrade remediation approach may be considered.
- If an "excavate and replace" approach is considered, we believe it would be required along University Boulevard from the beginning of the project along existing Eiterman Road to approximate STA 183+00 at locations where new fill is not required.
- The "excavate and replace" remediation should extend to 12 inches below the proposed subgrade level. The width of the remediation should extend to 18 inches beyond the edge of the pavement, including under new curbs or shoulders.
- If "excavate and replace" is to be used for remediation, consider including Plan Note G121 from the ODOT L&D Manual, Vol. 3, in the General Notes.
- In accordance with Section F of ODOT GB1, where "excavate and replace" is used for subgrade remediation, Item 712.09 Geotextile Fabric Type D is to be placed at the bottom of the undercuts, and Item 204 Granular Material is to be used to backfill the overexcavations. S&ME recommends that Item 204 Granular Material, Type B or C be utilized. It should be noted, however, that ODOT GB1 specifies that Item 204 Granular Material Type B without a geotextile fabric be utilized to backfill undercuts performed in the vicinity of any underdrains. It is also recommended that overexcavated subgrade areas backfilled with granular soil be drained to an underdrain, catch basin, or pipe.

Chemical Subgrade Stabilization

- The GB1 analysis also indicates that global chemical subgrade stabilization to a depth of 12 inches is also an option for subgrade remediation, and this approach would enable utilizing the additional benefit of an increased subgrade modulus of $1.36(M_R)$ when a global chemical stabilization program is implemented. However, the existing near surface soils at this site, in conjunction with the need for borrow soils, complicate the selection of chemical admixture to use during the stabilization program. Issues which must be considered include:



Preliminary Geotechnical Exploration Report
Shier-Rings Rd./University Blvd./Avery Rd. Realignment/Improvements

Dublin, Ohio

S&ME Project Nos. 1117-19-056/057

- ◆ The existing near surface A-7-6 soil with a Plasticity Index generally greater than 25% is suitable for lime stabilization.
 - ◆ A significant portion of the new alignment will require fill placement to attain the proposed subgrade level. To be suitable for lime stabilization, the new fill will need to have a Plasticity Index greater than 20%.
 - ◆ A majority of the borrow soils are anticipated to come from excavations required for the proposed realignment of Cosgray Ditch. A significant portion of the soils encountered in the borings drilled for the new ditch consist of A-4a, A-6a, and A-6b soils with Plasticity Indices less than 20%, which are more suitable for cement stabilization.
- Therefore, if the incorporation of a global chemical stabilization program is desired to increase the allowable Resilient Modulus value, and thus reduce the required thickness of new flexible pavement, it should be anticipated that additional effort (i.e., material sorting and handling) will be required to sort the borrow soils so that only materials with a PI greater than 20% are used within 2 feet of the proposed subgrade.

Earthwork Considerations

- Prior to commencing fill placement, all existing pavement, granular base, sod, topsoil, vegetation, and other miscellaneous materials should be completely removed from the entire footprint of the proposed roadway/roundabout embankments. Following the removal of these materials, S&ME recommends that consideration be given to test rolling the exposed embankment foundation prior to commencing fill placement in these areas. This additional test rolling, performed in accordance with Item 204.06 of the ODOT CMS and Section 204 of the ODOT *Construction Inspection Manual of Procedures (CIMP)*, would assist in identifying soft, wet or weak zones that may be present in areas where the thickness of new fill embankment is insufficient to “bridge” an underlying weak or wet soil. If any such zones are present, the materials contained in these zones should be scarified, dried, and thoroughly recompacted in place in accordance with ODOT CMS Item 203.07 or be removed and the overexcavation filled in a controlled manner with compacted, suitable embankment material (CMS Item 203.02) and the recommendations presented in the following sections of this report.
- Although ODOT CMS Item 203.05 permits the use of a “bridge lift” to aid in spanning soft or wet foundation areas, S&ME recommends that this practice not be permitted except where more than 3 feet of new embankment fill placement is required. Soft, weak, wet, or unsuitable soils that are not removed from beneath a thin layer of fill may result in significant difficulties in achieving the compaction percentages required for the new fill (Items 203.07 or 204.03) such that final subgrade acceptance proofrolling may require overexcavation of the new stabilized fill where weak soils were “bridged” by a minimal thickness of new fill.
- New fill should consist of inorganic soil free of all miscellaneous materials, cobbles, and boulders, which is placed in uniform, thin layers and then compacted in accordance with either Item 203, “*Roadway Excavation and Embankment*”, or when within 12 inches of the proposed subgrade level, Item 204 “*Subgrade Compaction and Proofrolling*”, of the ODOT CMS. Borrow materials should not be placed in a frozen condition or upon a frozen surface, and any sloping surfaces on which new fill is to be placed should first be benched in accordance with either Item 203.05 or ODOT *GB2*, depending on the slope of the existing ground surface at each location.
- Where the sides of existing roadway embankments are sloped steeper than 4(H):1(V) and additional fill is to be placed adjacent to the existing embankment (e.g., Eiterman/University connection), S&ME recommends that Special Benching be performed in accordance with ODOT *Geotechnical Bulletin GB2*, “Special Benching and Sidehill Embankment Fills” (ODOT *GB2*) dated April 19, 2017. Sketches illustrating several Special Benching configurations for sidehill “sliver” fills on various slopes are included in Figures 1, 2 and 3 on pages 3



and 6 of the ODOT *GB2* document. These configurations require a minimum distance of 8 feet between the crest of the bench back-slopes and the face of the new slope to permit compaction and grading equipment to work on a horizontal surface.

- Wherever “Special Benching” is used, consider incorporating Plan Note G109 from the ODOT L&D Manual, Vol. 3, into the General Notes.
- S&ME recommends that attention be given to the ditches and drainage swales adjacent to existing roadway embankments as unsuitable (e.g., soft, saturated, possibly organic) soil or very weak/unstable soil requiring removal may be present in the existing ditches or swales. S&ME recommends these areas be closely examined and the bottom of the ditches be probed prior to commencing earthwork operations, with all weak, wet, or organic soil removed prior to commencing fill placement. For this reason, EMH&T may consider including a 1- to 2-foot deep overexcavation of existing ditches in the project excavation quantities. These ditch overexcavations should be backfilled with properly compacted soil (ODOT *CMS* Item 203, or Item 204 if within 12 inches of proposed subgrade).
- Existing underground utility lines are present beneath and adjacent to the existing roadways, and the type of material used and the relative compactness of backfill within any such utility trenches are unknown. Some instability of utility trench backfill may occur during earthwork operations, and some recompaction of granular utility trench backfill may become necessary prior to stabilization. Additionally, S&ME recommends that the depth of all utilities beneath the proposed pavement be determined so that the utility lines are not disturbed or damaged during subgrade stabilization or overexcavation activities.

Proposed 3-Sided Culvert at Relocated Cosgray Ditch

We understand that a new 3-sided culvert is to be constructed to carry the new Cosgray Ditch beneath realigned Shier-Rings Road. Preliminary plan information indicates the proposed culvert and wingwalls will be supported on shallow spread foundations bearing at El. 917.2, with the wingwall foundations also having a 1.5-foot deep key to provide additional lateral/sliding resistance. Additionally, 2 feet of Type C riprap underlain by a geotextile fabric (ODOT *CMS* Item 712.09 Type B) is to be placed across the channel inside the culvert and at the inlet and outlet ends of the culvert to mitigate scour.

Borings B-109 and B-110 were drilled at the approximate location of this culvert and encountered stiff to very-stiff brown SANDY SILT (A-4a) at the proposed foundation bearing elevation. As such, Table 2 presents the recommended nominal and factored bearing resistances (q_n and q_R) at the service and strength limit states which should be used for the design of the spread foundations for culvert and wingwalls bearing on the stiff to very-stiff cohesive soils encountered in the borings.

**Table 2: Recommended Bearing Resistance (Nominal and Factored)
for Spread Footing Design – Service and Strength Limit States**

Foundation Type	Proposed Bearing Elevation (ft)	Limit State	Nominal Bearing Resistance, q_n (ksf)	Resistance Factor, ϕ_b	Factored Bearing Resistance, q_R (ksf)
Precast 3-sided Culvert	917.2	Service	--	--	5*
		Strength	10.8	0.5	5.4

* Presumptive Bearing Values from Table C10.6.2.6.1-1 of AASHTO LRFD Bridge Design Specifications



- Provided that the headwall/wingwall foundations are constructed neat and bear directly on the cohesive soils, we recommend a nominal sliding resistance (R_s) value of 2,000 psf. This recommendation considers that any unsuitable soils encountered at bearing level are overexcavated and replaced with compacted cohesive soil. The factored sliding resistance (R_R) for precast or cast-in-place spread foundations should then be calculated using a resistance factor (ϕ_s) of 0.85 and the factored sliding resistance (R_R) would be 1,700 psf.

However, it should be noted that Boring B-110 encountered very-dense granular soil at El. 915.8. Because neither Boring B-109 nor B-110 is located at the exact locations of the culvert inlet/outlet headwalls and with the potential change in material type, EMH&T may want to consider calculating the sliding resistance for the shallow spread foundations using a factored sliding resistance equal to the lesser of either 1,700 psf, or 0.53 times the total vertical foundation load. This approach would accommodate the presence of either the cohesive soil encountered in Boring B-109, or the granular soil in Boring B-110.

- Proposed spread foundations for the culvert and headwall/wingwalls which are subjected to eccentric loadings should be designed in accordance with Articles 10.6.1.3, 10.6.3.3 and 11.6.3.3 of the AASHTO *LRFD*. Once the footing design has been finalized, it is recommended that the structural designer confirm that the eccentricity of the foundation is less than one-third (1/3) of the appropriate footing dimension (width and/or length) for footings on soil (AASHTO Article 10.6.3.3).
- Foundation keys are planned to extend to El. 915.7 (18 inches) beneath the proposed wingwall foundations of the 3-sided culvert. It should be noted that significant difficulties in maintaining open excavations for these keyways may be experienced if these excavations extend to the granular soil deposit encountered in Boring B-110 at El. 915.8. If the walls of the keys become disturbed or loosened, or require forming to maintain the keyway, S&ME recommends that this additional passive component of sliding resistance be ignored because of construction disturbance.
- Preliminary drawings from EMH&T indicate that the proposed culvert and wingwalls will be backfilled with select granular material such as ODOT 703.16.C.2 Granular Material Type B that is placed in a wedge formed by the back of the wingwall and a line rising from the base of the wingwall foundation at an angle no greater than 60 degrees from the horizontal. For the wingwalls, provided a wall movement greater than 0.25 percent the height of the wall (H) occurs and proper drainage (ODOT CMS Item 518) is provided behind the wall, a drained "active" earth pressure condition using an equivalent fluid unit weight of 35 pcf may be used to design the wingwalls. For the culvert walls, it is recommended that a drained "at-rest" earth pressure condition using an equivalent fluid unit weight of 55 pcf be used.

Project #2: Shier Rings Rd./Avery Rd. Intersection Improvements

At the time of the field work, a roundabout was being considered at this location. We now understand that the improvements being considered include the addition of both through and turn lanes on the north, east and west legs of the intersection. No significant improvements are anticipated to the south of existing Shier-Rings Road. A new 180-foot-long box culvert with a 12-foot span and a 4-foot rise is planned on the south side of the proposed roundabout of Shier-Rings Road and Fleet Drive.

Pavement Subgrade Support Parameters

Based on the results of the laboratory testing, we recommend that new pavement design for this project be based on a California Bearing Ratio (CBR) value of 5%, and a Resilient Modulus value (M_R) value of 6,000 psi. These subgrade support values may be used during pavement design for this project provided that the entire proposed pavement subgrade is prepared in strict accordance with Item 204 of the ODOT CMS, and that all borrow soil



placed within 3 feet of the final subgrade level of the new roadway is capable of providing average subgrade support parameters which meet or exceed the above values.

Subgrade Remediation

- It is understood that the edges of the existing pavement adjacent to the proposed new lanes will be sawcut and salvaged, if possible. As such, it is not anticipated that a global subgrade stabilization program will be incorporated into Project #2, and that an “excavate and replace” subgrade remediation will be utilized.
- Based on the results of the GB1 analysis (see Appendix B), four (4) of the five (5) borings drilled between approximate STA 206+50 and Avery Road encountered conditions which may be potentially problematic and require remediation. As such, S&ME recommends that 12 inches of “excavate and replace” subgrade remediation be planned in the proposed widening areas outside the areas where existing pavement is to be salvaged.

Table 3: Summary of GB1 Subgrade Remediation Recommendations (Project #2)

Station Range	Recommended Remediation	Width Limits
~Sta. 206+50 to Sta. 219+25 (Avery Rd)	12" Excavate & Replace	From the sawcut edge of the existing pavement to be salvaged, to 18 inches beyond the new edge of the widened pavement, including under new curbs or shoulders

- If “excavate and replace” is to be used for remediation, consider including Plan Note G121 from the ODOT L&D Manual, Vol. 3, in the General Notes.
- In accordance with Section F of ODOT GB1, where “excavate and replace” is used for subgrade remediation, Item 712.09 Geotextile Fabric Type D is to be placed at the bottom of the undercuts, and Item 204 Granular Material is to be used to backfill the overexcavations. S&ME recommends that Item 204 Granular Material, Type B or C be utilized. It should be noted, however, that ODOT GB1 specifies that Item 204 Granular Material Type B without a geotextile fabric be utilized to backfill undercuts performed in the vicinity of any underdrains. It is also recommended that overexcavated subgrade areas backfilled with granular soil be drained to an underdrain, catch basin, or pipe.

Earthwork

- All existing pavement, granular base, sod, topsoil, vegetation, and other miscellaneous materials should be completely removed from the entire footprint of the proposed pavement widening areas of Project #2. Following the removal of these materials, S&ME recommends that consideration be given to test rolling the exposed embankment foundation prior to commencing fill placement in these areas. This additional test rolling, performed in accordance with Item 204.06 of the ODOT CMS and Section 204 of the ODOT *Construction Inspection Manual of Procedures (CIMP)*, would assist in identifying soft, wet or weak zones that may be present in areas where the thickness of new fill embankment is insufficient to “bridge” an underlying weak or wet soil. If any such zones are present, the materials contained in these zones should be scarified, dried, and thoroughly recompacted in place in accordance with ODOT CMS Item 203.07 or be removed and the overexcavation filled in a controlled manner with compacted, suitable embankment material (CMS Item 203.02) and the recommendations presented in the following sections of this report.



- Although ODOT CMS Item 203.05 permits the use of a “bridge lift” to aid in spanning soft or wet foundation areas, S&ME recommends that this practice not be permitted except where more than 3 feet of new embankment fill placement is required. Soft, weak, wet, or unsuitable soils that are not removed from beneath a thin layer of fill may result in significant difficulties in achieving the compaction percentages required for the new fill (Items 203.07 or 204.03) such that final subgrade acceptance proofrolling may require overexcavation of the new stabilized fill where weak soils were “bridged” by a minimal thickness of new fill.
- S&ME recommends that attention be given to the ditches and drainage swales in the proposed pavement widening areas as unsuitable (e.g., soft, saturated, possibly organic) soil or very weak/unstable soil requiring removal may be present in the existing ditches or swales. S&ME recommends these areas be closely examined and the bottom of the ditches be probed prior to commencing earthwork operations, with all weak, wet, or organic soil removed prior to commencing fill placement. For this reason, EMH&T may consider including a 1- to 2-foot deep overexcavation of existing ditches in the project excavation quantities. These ditch overexcavations should be backfilled with properly compacted soil (ODOT CMS Item 203, or Item 204 if within 12 inches of proposed subgrade).
- Numerous existing underground utility lines are present beneath the proposed pavement widening areas adjacent to the existing salvaged roadway pavement. The type of material used and the relative compactness of backfill within any such utility trenches are unknown. Some instability of utility trench backfill may occur during earthwork operations, and some recompaction of granular utility trench backfill may become necessary prior to stabilization. Additionally, S&ME recommends that the depth of all utilities beneath the proposed pavement be determined so that the utility lines are not disturbed or damaged during subgrade stabilization or overexcavation activities.
- New fill should consist of inorganic soil free of all miscellaneous materials, cobbles, and boulders, which is placed in uniform, thin layers and then compacted in accordance with either Item 203, “*Roadway Excavation and Embankment*”, or when within 12 inches of the proposed subgrade level, Item 204 “*Subgrade Compaction and Proofrolling*”, of the ODOT CMS. Borrow materials should not be placed in a frozen condition or upon a frozen surface, and any sloping surfaces on which new fill is to be placed should first be benched in accordance with either Item 203.05 or ODOT GB2, depending on the slope of the existing ground surface at each location.

Proposed Box Culvert Extension Under Fleet Drive

We understand that the existing 12' by 4' box culvert beneath existing Fleet Drive, just south of existing Shier-Rings Road, is to be extended to an approximate length of 180 feet. Preliminary plan information indicates the proposed box culvert will bear at approximate El. 919. The new head-/wingwalls will be supported on shallow spread foundations bearing at approximate El. 917.5, with the headwall foundations also having a 2.5-foot deep key/cut off wall to provide additional lateral/sliding resistance and resistance to piping beneath the culvert.

Boring B-201 was drilled as near as practical to this culvert and encountered medium-dense GRAVEL WITH SAND AND SILT (A-2-4) over stiff to very-stiff brown SANDY SILT (A-4a) at the approximate culvert bottom and headwall foundation bearing elevations. Table 4 presents preliminary recommended nominal and factored bearing resistances (q_n and q_R) at the service and strength limit states which should be used for the design of the spread foundations for culvert and headwalls bearing on the materials encountered in Borings B-201.



Table 4: Fleet Drive Box Culvert - Recommended Bearing Resistance (Nominal and Factored) for Spread Footing Design – Service and Strength Limit States

Foundation Type	Proposed Bearing Elevation (ft)	Limit State	Nominal Bearing Resistance, q_n (ksf)	Resistance Factor, ϕ_b	Factored Bearing Resistance, q_R (ksf)
Box Culvert/Wingwall	919 to 917.5	Service	--	--	4*
		Strength	7.8	0.5	3.9

* Presumptive Bearing Values from Table C10.6.2.6.1-1 of AASHTO LRFD Bridge Design Specifications

- Because of the length of the new culvert, and as Boring B-201 was not located at the exact location of either the culvert inlet/outlet headwall, the box culvert and the head/wingwall foundations may encounter either granular or cohesive soil at the proposed culvert base (~ El. 919) and the wingwall spread foundation bearing level (~El. 917.5). For this reason, S&ME recommends that EMH&T consider calculating the sliding resistance on the base of the culvert using a factored sliding resistance equal to the lesser of either 750 psf, or 0.53 times the total vertical foundation load.
- The key/cut-off wall is planned below the bottom of the headwall/wingwall foundations between El. 917.5 and El. 915. At this approximate depth, Boring B-201 encountered medium-dense GRAVEL WITH SAND AND SILT (A-2-4). It should be noted that significant difficulties in maintaining open excavations for these keyways may be experienced where these excavations encounter this granular soil deposit. If the walls of the key become disturbed, loosened, or require forming to maintain an open excavation to construct the keyway, S&ME recommends that this additional passive component of sliding resistance be ignored because of construction disturbance.
- Proposed spread foundations for the culvert and headwall/wingwalls which are subjected to eccentric loadings should be designed in accordance with Articles 10.6.1.3, 10.6.3.3 and 11.6.3.3 of the AASHTO LRFD. Once the footing design has been finalized, it is recommended that the structural designer confirm that the eccentricity of the foundation is less than one-third (1/3) of the appropriate footing dimension (width and/or length) for footings on soil (AASHTO Article 10.6.3.3).
- Preliminary drawings from EMH&T indicate that the proposed culvert and wingwalls will be backfilled with select granular material such as ODOT 703.16.C.2 Granular Material Type B that is placed in a wedge formed by the back of the wingwall and a line rising from the base of the wingwall foundation at an angle no greater than 60 degrees from the horizontal. Provided a wall movement greater than 0.25 percent the height of the wall (H) occurs, and proper drainage (ODOT CMS Item 518) is provided behind the wall, a drained "active" earth pressure condition using an equivalent fluid unit weight of 35 pcf. For the culvert walls, it is recommended that a drained "at-rest" earth pressure condition using an equivalent fluid unit weight of 55 pcf be used.



**Preliminary Geotechnical Exploration Report
Shier-Rings Rd./University Blvd./Avery Rd. Realignment/Improvements**

Dublin, Ohio

S&ME Project Nos. 1117-19-056/057

◆ **Closing**

S&ME has provided this Preliminary Geotechnical Exploration Report to assist EMH&T with the on-going design of the Shier-Rings/University/Avery roadway realignment and improvement projects currently in progress for the City of Dublin. Once final plans become available, S&ME will prepare a final report and recommendations.

Respectfully,

S&ME, Inc.

Handwritten signature of Christopher R. West in blue ink.

Christopher R. West, P.E.
Project Engineer

Handwritten signature of Richard S. Weigand in blue ink.

Richard S. Weigand, P.E.
Senior Engineer/Senior Reviewer

Submitted: Email (mbrehm@emht.com)

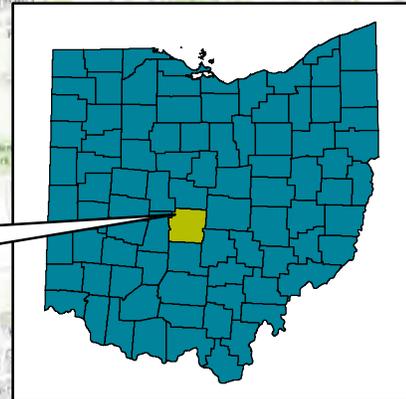
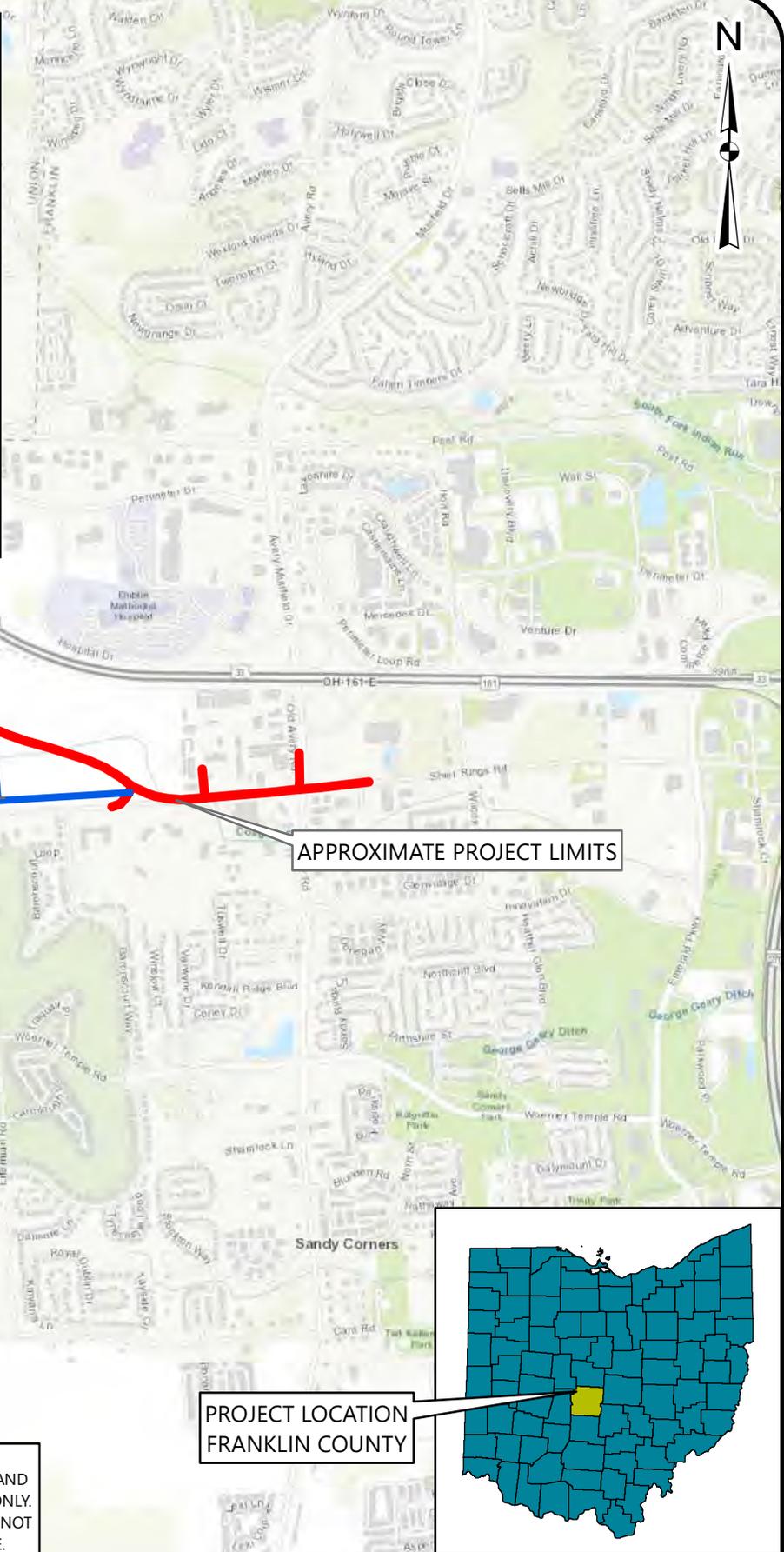
Attachments: Appendices A through D



Appendix A

Vicinity Map.....	1
Plan of Borings	2
Explanation of Symbols and Terms Used on Boring Logs	3
Boring Logs.....	4-25
Important Information About Your Geotechnical Engineering Report.....	26

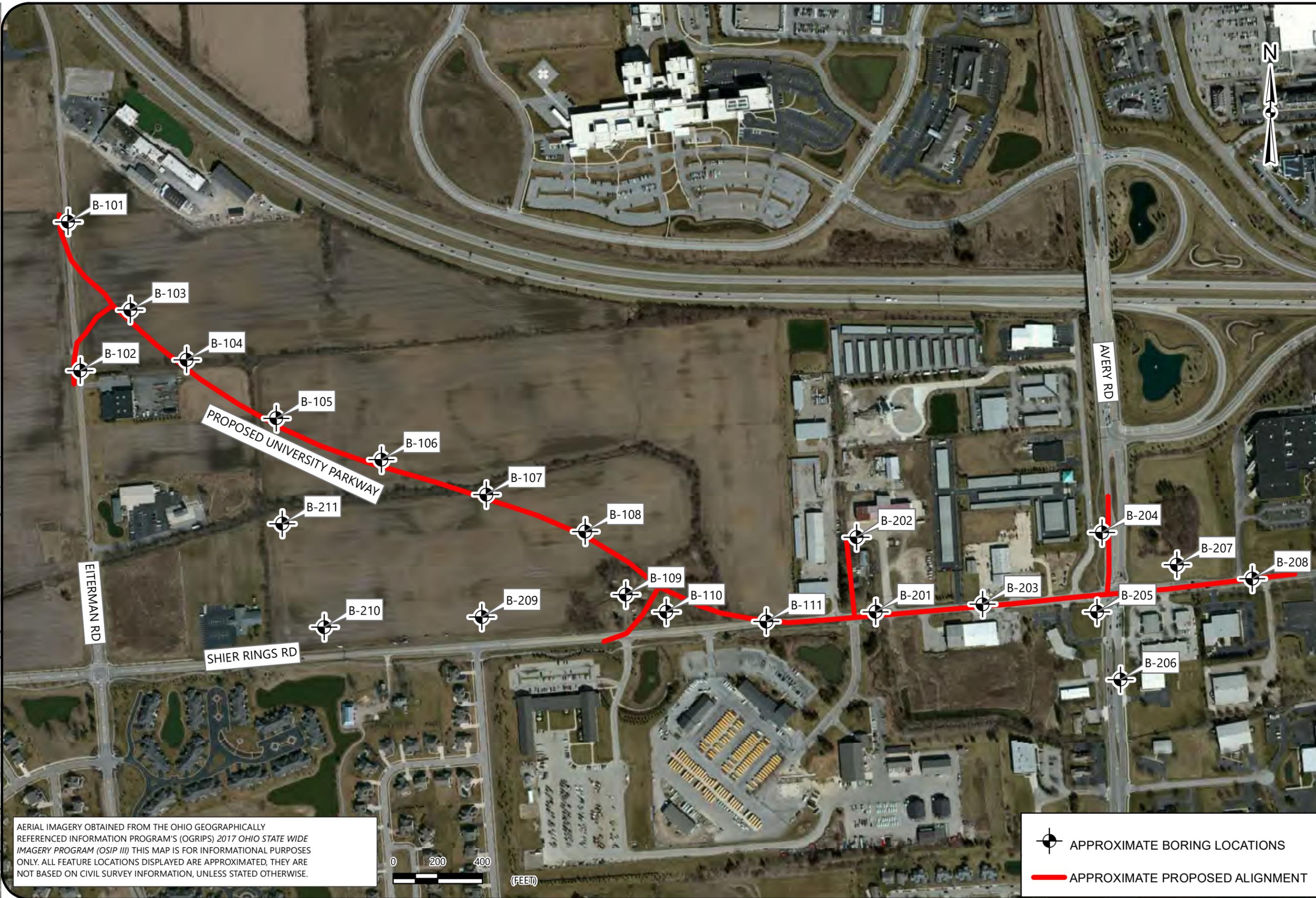
Drawing Path: T:\Projects\2019\GEON\1117-19-056 EMHT-Shier Rings Realignment\GIS\ArcMap\Map_V-Map_Shier Rings.mxd plotted by cwest 02-17-2020



REFERENCE/NOTES:
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	VICINITY MAP	SCALE: 1" = 2,000'	PLATE No.
	SHIER RINGS ROAD AND UNIVERSITY BLVD DUBLIN, OHIO	DATE: 2-17-20	1
		PROJECT NUMBER 1117-19-056	

Drawing Path: T:\Projects\2019\GEO\1117-19-056 EMHT-Shier Rings Realignment\GIS\ArcMap\POB-Shier Rings.mxd plotted by cwest 02-16-2020



AERIAL IMAGERY OBTAINED FROM THE OHIO GEOGRAPHICALLY REFERENCED INFORMATION PROGRAM'S (OGRIPS) 2017 OHIO STATE WIDE IMAGERY PROGRAM (OSIP III) THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED, THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

 APPROXIMATE BORING LOCATIONS
 APPROXIMATE PROPOSED ALIGNMENT



PLAN OF BORINGS

SHIER RINGS ROAD AND UNIVERSITY BLVD
DUBLIN, OHIO

SCALE:
1" = 400'
DATE:
2-16-20
PROJECT NUMBER
1117-19-016
PLATE NO.

EXPLANATION OF SYMBOLS AND TERMS USED ON BORING LOGS FOR SAMPLING AND DESCRIPTION OF SOIL

SAMPLING DATA

- █ - Indicates sample was attempted within this depth interval.
- 2 - The number of blows required for each 6-inch increment of penetration of a "Standard" 2-inch O.D. split-barrel sampler, driven a distance of 18 inches by a 140-pound hammer freely falling 30 inches (SPT). The raw "blowcount" or "N" is equal to the sum of the second and third 6-inch increments of penetration.
- 3
- 5
- N₆₀ - Corrected Blowcount = [(Drill Rod Energy Ratio) / (0.60 Standard)] X N
- SS - Split-barrel sampler, any size.
- ST - Shelby tube sampler, 3" O.D., hydraulically pushed.
- R - Refusal of sampler in very-hard or dense soil, or on a resistant surface.
- 50-4" - Number of blows (50) to drive a split-barrel sampler a certain distance (4 inches), other than the normal 6-inch increment.

DEPTH DATA

- W - Depth of water or seepage encountered during drilling.
- ▽ - Depth to water in boring at the end of drilling (EOD).
- ▼ 5 days - Depth to water in monitoring well or piezometer in boring a certain number of days (5) after termination of drilling.
- TR - Depth to top of rock.

SOIL DESCRIPTIONS

Soils have been classified in general accordance with Section 603 of the most recent ODOT SGE, and described in general accordance with Section 602, including the use of special adjectives to designate approximate percentages of minor components as follows:

<u>Adjective</u>	<u>Percent by Weight</u>
trace	1 to 10
little	10 to 20
some	20 to 35
"and"	35 to 50

The following terms are used to describe density and consistency of soils:

<u>Term (Granular Soils)</u>	<u>Blows per foot (N₆₀)</u>
Very-loose	Less than 5
Loose	5 to 10
Medium-dense	11 to 30
Dense	31 to 50
Very-dense	Over 50
<u>Term (Cohesive Soils)</u>	<u>Qu (tsf)</u>
Very-soft	Less than 0.25
Soft	0.25 to 0.5
Medium-stiff	0.5 to 1.0
Stiff	1.0 to 2.0
Very-stiff	2.0 to 4.0
Hard	Over 4.0



S&ME JOB: 1117-19-056

PROJECT: SHIER RINGS REALIGNMENT		DRILLING FIRM / OPERATOR: S&ME / D. GODWIN		DRILL RIG: S&ME CME 550X (R50)		STATION / OFFSET: 167+40, 4' LT		EXPLORATION ID												
TYPE: ROADWAY		SAMPLING FIRM / LOGGER: S&ME / D. GODWIN		HAMMER: CME AUTOMATIC		ALIGNMENT: CL UNIVERSITY		B-101												
PID: BR ID: 12/10/19		DRILLING METHOD: 4.5" CFA		CALIBRATION DATE: 1/21/19		ELEVATION: 938.6 (MSL) EOB: 7.0 ft.		PAGE												
START: 12/10/19 END: 12/10/19		SAMPLING METHOD: SPT		ENERGY RATIO (%): 90*		LAT / LONG: 40.099925 N, -83.175434 W		1 OF 1												
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC SAMPLE (%)	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL	
ASPHALT - 5-1/4 INCHES		938.6	1																	X
GRANULAR BASE - 10-1/2 INCHES		937.3	2	4	11	56	2.0-4.2	5	6	9	42	38	38	16	22	24	A-6b (13)	146	<V>	
Probable Fill: Very stiff dark-brown SILTY CLAY, little fine to coarse sand, trace fine gravel, moist.		935.6	3	3	14	83	1.2-1.5	-	-	-	-	-	-	-	-	30	A-7-6 (V)	-	<V>	
Stiff brown mottled with gray CLAY, some silt, little fine to coarse sand, trace fine gravel, moist.			4	4																<V>
			5																	<V>
		931.6	6	2	12	78	1.2-2.0	-	-	-	-	-	-	-	-	-	A-7-6 (V)	-		<V>
			7	5																<V>
			EOB																	<V>

- No seepage noted.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE



S&ME JOB: 1117-19-056

PROJECT: SHIER RINGS REALIGNMENT		DRILLING FIRM / OPERATOR: S&ME / D. GODWIN		STATION / OFFSET: 175+70, 1' RT		EXPLORATION ID														
TYPE: ROADWAY		SAMPLING FIRM / LOGGER: S&ME / D. GODWIN		ALIGNMENT: CL UNIVERSITY		B-104														
PID: BR ID: 12/10/19		DRILLING METHOD: 4.5" CFA		ELEVATION: 938.1 (MSL) EOB: 7.0 ft.		PAGE														
START: 12/10/19 END: 12/10/19		SAMPLING METHOD: SPT		LAT / LONG: 40.098245 N, -83.173522 W		1 OF 1														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC SAMPLE (%)	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL	
ROOTMAT - 4-1/2 INCHES		938.1																		<LV>
Fill: Very-stiff brown SILTY CLAY, little fine to coarse sand, little fine gravel, contains brick fragments, damp to moist.		937.7	1	2	12	56	2.0-4.0	11	5	9	38	37	39	19	20	19	A-6b (12)	-		<LV>
Fill: Hard brown and gray SILT AND CLAY, some fine to coarse sand, trace fine gravel, contains brick fragments, damp.		935.6	2	3	38	78	4.5+	-	-	-	-	-	-	-	-	11	A-6a (V)	-		<LV>
Hard brown SILT AND CLAY, some fine to coarse sand, little fine to coarse gravel, damp.		933.6	3	7	33	44	4.5+	-	-	-	-	-	-	-	-	-	A-6a (V)	-		<LV>
		931.1	4	11	33	44	4.5+	-	-	-	-	-	-	-	-	-	A-6a (V)	-		<LV>
			5	11	33	44	4.5+	-	-	-	-	-	-	-	-	-	A-6a (V)	-		<LV>
			6	11	33	44	4.5+	-	-	-	-	-	-	-	-	-	A-6a (V)	-		<LV>
			7	11	33	44	4.5+	-	-	-	-	-	-	-	-	-	A-6a (V)	-		<LV>
			EOB	11	33	44	4.5+	-	-	-	-	-	-	-	-	-	A-6a (V)	-		<LV>

- No seepage noted.

NOTES: SEE ABOVE.
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE



PROJECT: SHIER RINGS REALIGNMENT		DRILLING FIRM / OPERATOR: S&ME / P. TUTTLE		STATION / OFFSET: 180+50.2 RT		EXPLORATION ID																																	
TYPE: ROADWAY		SAMPLING FIRM / LOGGER: S&ME / P. TUTTLE		ALIGNMENT: CL UNIVERSITY		B-105																																	
PID: BR ID: 11/25/19		DRILLING METHOD: 3.25" HSA		ELEVATION: 935.0 (MSL) EOB: 15.0 ft.		PAGE																																	
START: 11/25/19 END: 11/25/19		SAMPLING METHOD: SPT		LAT / LONG: 40.097534 N, -83.172077 W		1 OF 1																																	
MATERIAL DESCRIPTION AND NOTES		ELEV.		GRADATION (%)				ODOT CLASS (GI)		SO4 ppm		BACK FILL																											
		DEPTHS		SPT/RQD		REC SAMPLE ID		HP (tsf)		GR		CS		FS		SI		CL		LL		PL		PI		WC													
ROOTMAT/TOPSOIL - 4 INCHES Very-stiff brown CLAY, "and" silt, trace fine to coarse sand, trace fine gravel, iron oxide staining, moist. Hard brown SILT AND CLAY, little to some fine to coarse sand, trace fine to coarse gravel, damp. Hard brown SANDY SILT, some clay, trace to little fine gravel, damp.		935.0																																					
		934.7		1		3		SS-1		2.5-3.5		1		2		7		42		48		52		19		33		24		A-7-6 (18)		128							
		932.0		2		5		SS-2		4.5																													
		927.0		3		8		SS-3		4.2-4.5+		21		8		12		32		27																			
				4		21		SS-4		4.5																													
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		15																																					
		EOB																																					

- No seepage noted.

NOTES: SEE ABOVE.
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE



S&ME JOB: 1117-19-056

PROJECT: SHIER RINGS REALIGNMENT		DRILLING FIRM / OPERATOR: S&ME / P. TUTTLE		STATION / OFFSET: 185+55, 1' LT		EXPLORATION ID	
TYPE: ROADWAY		SAMPLING FIRM / LOGGER: S&ME / P. TUTTLE		ALIGNMENT: CL UNIVERSITY		B-106	
PID: BR ID: 11/25/19		DRILLING METHOD: 3.25" HSA		ELEVATION: 933.9 (MSL) EOB: 15.0 ft.		PAGE	
START: 11/25/19 END: 11/25/19		SAMPLING METHOD: SPT		LAT / LONG: 40.097040 N, -83.170393 W		1 OF 1	
MATERIAL DESCRIPTION AND NOTES		ELEV.		GRADATION (%)		ODOT CLASS (GI)	
		933.9		GR CS FS SI CL		WC	
		933.5		HP (tsf)		PI	
				REC SAMPLE ID		PL	
				N ₆₀ (%)		LL	
				SPT/RQD		CL	
				DEPTHS		SI	
				1		FS	
				2		CS	
				3		GR	
				4		HP	
				5		REC SAMPLE ID	
				6		N ₆₀ (%)	
				7		SPT/RQD	
				8		DEPTHS	
				9		ELEV.	
				10		933.5	
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S&ME JOB: 1117-19-056

PROJECT: SHIER RINGS REALIGNMENT			DRILLING FIRM / OPERATOR: S&ME / P. TUTTLE			DRILL RIG: S&ME D50 (R-63)			STATION / OFFSET: 190+50.3' RT			EXPLORATION ID								
TYPE: ROADWAY			SAMPLING FIRM / LOGGER: S&ME / P. TUTTLE			HAMMER: CME AUTOMATIC			ALIGNMENT: CL UNIVERSITY			B-107								
PID: BR ID: 11/25/19			DRILLING METHOD: 3.25" HSA			CALIBRATION DATE: 9/12/19			ELEVATION: 929.4 (MSL) EOB: 15.0 ft.			PAGE								
START: 11/25/19 END: 11/25/19			SAMPLING METHOD: SPT			ENERGY RATIO (%): 90*			LAT / LONG: 40.096622 N, -83.168710 W			1 OF 1								
MATERIAL DESCRIPTION AND NOTES			ELEV.	DEPTHS	SPT/RQD	N ₆₀	REC SAMPLE (%)	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
ROOTMAT/TOPSOIL - 4 INCHES			929.4	1	3															<LV>
Very-stiff brown mottled with gray CLAY , some silt, little fine to coarse sand, trace fine gravel, few iron oxide stains, moist.			929.1	2	4	14	56	2.5-3.0	2	3	9	34	52	57	22	35	26	A-7-6 (19)	-	<LV>
				3																<LV>
				4	4	14	78	3.0-3.5	-	-	-	-	-	-	-	-	22	A-7-6 (V)	-	<LV>
			923.9	5	5															<LV>
Very-stiff to hard brown SANDY SILT , some clay, trace to little fine to coarse gravel, damp to moist.				6	3	14	61	4.5+	-	-	-	-	-	-	-	-	-	A-4a (V)	-	<LV>
				7	4															<LV>
				8	5															<LV>
				9	3	17	78	2.0-2.5	-	-	-	-	-	23	14	9	16	A-4a (V)	-	<LV>
				10	4															<LV>
				11	7															<LV>
				12																<LV>
				13																<LV>
				14	20	59	39	SS-5	-	-	-	-	-	-	-	-	-	A-2-6 (V)	-	<LV>
			917.4	15	17															<LV>
			914.4	EOB																<LV>

- No seepage noted.

NOTES: SEE ABOVE.
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE



S&ME JOB: 1117-19-056

PROJECT: SHIER RINGS REALIGNMENT		DRILLING FIRM / OPERATOR: S&ME / P. TUTTLE		STATION / OFFSET: 195+23. CL		EXPLORATION ID														
TYPE: ROADWAY		SAMPLING FIRM / LOGGER: S&ME / P. TUTTLE		ALIGNMENT: CL UNIVERSITY		B-108														
PID: BR ID: 11/25/19		DRILLING METHOD: 3.25" HSA		ELEVATION: 928.2 (MSL) EOB: 15.0 ft.		PAGE														
START: 11/25/19 END: 11/25/19		SAMPLING METHOD: SPT		LAT / LONG: 40.096177 N, -83.167125 W		1 OF 1														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/RQD	N ₆₀	REC SAMPLE (%)	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL	
ROOTMAT/TOPSOIL - 4 INCHES Very-stiff brown CLAY, "and" silt, little fine to coarse sand, trace fine to coarse gravel, few iron oxide stains, desiccated, few roots, damp to moist. Hard brown SILT AND CLAY, some fine to coarse sand, little fine to coarse gravel, damp. Hard brown SANDY SILT, some clay, little fine to coarse gravel, damp.		928.2	1	4	21	78	3.2-3.7	7	3	10	37	43	44	18	26	20	A-7-6 (15)	-	<LV>	
		927.9	2	5	9	89	4.5+	-	-	-	-	-	-	-	-	-	-	A-6a (V)	-	<LV>
		925.2	3	9	15	44	67	4.5+	-	-	-	-	-	-	-	-	-	A-4a (V)	-	<LV>
		922.7	4	5	24	83	4.5+	-	-	-	-	-	-	-	-	-	-	A-4a (V)	-	<LV>
			5	7	23	94	4.5+	-	-	-	-	-	-	-	-	-	-	A-4a (V)	-	<LV>
			6	7	48	94	4.5+	-	-	-	-	-	-	-	-	-	-	A-4a (V)	-	<LV>
			7	9	48	94	4.5+	-	-	-	-	-	-	-	-	-	-	A-4a (V)	-	<LV>
			8	7	48	94	4.5+	-	-	-	-	-	-	-	-	-	-	A-4a (V)	-	<LV>
			9	7	48	94	4.5+	-	-	-	-	-	-	-	-	-	-	A-4a (V)	-	<LV>
			10	8	48	94	4.5+	-	-	-	-	-	-	-	-	-	-	A-4a (V)	-	<LV>
			11	8	48	94	4.5+	-	-	-	-	-	-	-	-	-	-	A-4a (V)	-	<LV>
			12	8	48	94	4.5+	-	-	-	-	-	-	-	-	-	-	A-4a (V)	-	<LV>
			13	8	48	94	4.5+	-	-	-	-	-	-	-	-	-	-	A-4a (V)	-	<LV>
			14	8	48	94	4.5+	-	-	-	-	-	-	-	-	-	-	A-4a (V)	-	<LV>
			15	22	48	94	4.5+	-	-	-	-	-	-	-	-	-	-	A-4a (V)	-	<LV>

- No seepage noted.

NOTES: SEE ABOVE.
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE



S&ME JOB: 1117-19-056

PROJECT: SHIER RINGS REALIGNMENT		DRILLING FIRM / OPERATOR: S&ME / P. TUTTLE		DRILL RIG: S&ME D50 (R-63)		STATION / OFFSET: 198+37, 128' RT		EXPLORATION ID			
TYPE: ROADWAY		SAMPLING FIRM / LOGGER: S&ME / P. TUTTLE		HAMMER: CME AUTOMATIC		ALIGNMENT: CL UNIVERSITY		B-109			
PID: BR ID: 11/25/19		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 9/12/19		ELEVATION: 927.6 (MSL) EOB: 25.0 ft.		PAGE			
START: 11/25/19 END: 11/25/19		SAMPLING METHOD: SPT		ENERGY RATIO (%): 90*		LAT / LONG: 40.095406 N, -83.166466 W		1 OF 1			
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/RQD	N ₆₀	REC SAMPLE (%)	HP (tsf)	GRADATION (%)	ODOT CLASS (GI)	BACK FILL	
								GR CS FS SI CL	ATTEBERG LL PL PI WC	SO4 ppm	
ROOTMAT/TOPSOIL - 7 INCHES		927.0	1	4							<LV>
Very-stiff to hard dark-brown CLAY, trace fine to coarse sand, trace fine gravel, damp.		925.1	2	5	20	56	3.2-4.5	3 2 6 41 48	19 31		<LV>
Very-stiff to hard brown SILT AND CLAY, little to some fine to coarse sand, little fine to coarse gravel, contains silt seams, and iron oxide stains, damp.			3	6	21	39	4.5+	- - - - -	- - - - -		<LV>
			4	8							<LV>
			5								<LV>
			6								<LV>
			7	3	15	89	4.0-4.5+	10 12 31 27	- - -	13	<LV>
			8	4	12	67	2.0-4.5	10 18 29 27	- - -		<LV>
			9	5	26	72	1.7-3.7	7 10 36 32 28	16 12		<LV>
		917.1	10	8	32	94	1.5-3.0	12 14 31 21	- - -		<LV>
Stiff to very-stiff brown SANDY SILT, some clay, some fine to coarse gravel, damp.			11	13							<LV>
			12								<LV>
			13								<LV>
			14	3	21	56	2.0-4.0	- - - - -	- - -		<LV>
			15	7							<LV>
			16	7	27	78	4.5	- - - - -	- - -		<LV>
Hard gray SANDY SILT, some clay, little fine to coarse gravel, damp.		909.6	17	8							<LV>
			18	10							<LV>
			19	6	27	67	4.5+	- - - - -	- - -		<LV>
			20	10							<LV>
			21								<LV>
			22	6	32	94	4.5+	- - - - -	- - -		<LV>
		904.6	23	9							<LV>
Very-dense gray COARSE AND FINE SAND, little silt, trace fine gravel, damp.			24	12							<LV>
		902.6	25	5	77	83	-	- - - - -	- - -		<LV>
			26	25							<LV>
			EOB								<LV>

- Encountered seepage at 1.7'
 - Boring caved and dry at 12.3' after augers pulled.

NOTES: SEE ABOVE.
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE



S&ME JOB: 1117-19-057

PROJECT: SHIER RINGS/AVERY IMPR.		DRILLING FIRM / OPERATOR: S&ME / D. GODWIN		DRILL RIG: S&ME CME 550X (R50)		STATION / OFFSET: 209+27.9' LT		EXPLORATION ID					
TYPE: ROADWAY		SAMPLING FIRM / LOGGER: S&ME / D. GODWIN		HAMMER: CME AUTOMATIC		ALIGNMENT: CL SHIER RINGS		B-201					
PID: BR ID: 12/10/19		DRILLING METHOD: 4.5" CFA		CALIBRATION DATE: 1/21/19		ELEVATION: 924.0 (MSL) EOB: 25.0 ft.		PAGE					
START: 12/10/19 END: 12/10/19		SAMPLING METHOD: SPT		ENERGY RATIO (%): 90*		LAT / LONG:		1 OF 1					
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/RQD	N ₆₀	REC SAMPLE (%)	HP (tsf)	GRADATION (%)	ATTERBERG	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
		924.0						GR CS FS SI CL	LL PL PI				
ASPHALT - 10 INCHES		923.2	1										
GRANULAR BASE - 6-1/2 INCHES		922.6	2	3	14	61	1.5-2.5	1 2 6 38 53	54 18 36	26	A-7-6 (19)	239	
Stiff brown and gray CLAY, "and" silt, trace fine to coarse sand, trace fine gravel, moist.			3	4	14	72	1.0-2.0	- - - - -	- - - - -	26	A-7-6 (V)	-	
Medium-dense brown GRAVEL WITH SAND AND SILT.		918.5	4	5									
Stiff to very-stiff brown SANDY SILT, some clay, trace to little fine to coarse gravel, few iron oxide stains, damp.		916.5	5										
Medium-dense brownish-gray GRAVEL WITH SAND, SILT AND CLAY, moist.		911.5	6	8	18	61	2.2-3.2	33 11 21 22 13	- - - - -	11	A-2-4 (V)	-	
Stiff to very-stiff gray SANDY SILT, little to some clay, trace fine gravel, damp to moist.		908.5	7	5	15	50	1.0-3.2	14 12 15 35 24	- - - - -	-	A-4a (V)	-	
			8	2	8	56	1.0-3.2	10 13 21 34 22 20	13 7 14	14	A-4a (4)	-	
			9	3	20	67	1.7-3.7	14 11 18 36 21	- - - - -	12	A-4a (V)	-	
			10	4	20	67	1.7-3.7						
			11	6	20	67	1.7-3.7						
			12	7	20	67	1.7-3.7						
			13										
			14	5	20	50	-	- - - - -	- - - - -	-	A-2-6 (V)	-	
			15	6	20	50	-	- - - - -	- - - - -	-	A-2-6 (V)	-	
			16	7	24	56	1.5-2.5	- - - - -	- - - - -	14	A-4a (V)	-	
			17	5	24	56	1.5-2.5	- - - - -	- - - - -	-	A-4a (V)	-	
			18	11	32	44	1.0-2.7	- - - - -	- - - - -	-	A-4a (V)	-	
			19	9	32	44	1.0-2.7	- - - - -	- - - - -	-	A-4a (V)	-	
			20	10									
			21	5	24	50	2.0-2.5	- - - - -	- - - - -	-	A-4a (V)	-	
			22	7	24	50	2.0-2.5	- - - - -	- - - - -	-	A-4a (V)	-	
			23	9									
			24	4	20	67	3.0-4.5	- - - - -	- - - - -	-	A-4a (V)	-	
		899.0	25	8									

- Encountered seepage at 2.7', 5.5' and 12.5'.
 - Boring caved and dry at 16.0' at completion.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE



S&ME JOB: 1117-19-057

PROJECT: SHIER RINGS/AVERY IMPR.		DRILLING FIRM / OPERATOR: S&ME / D. GODWIN		STATION / OFFSET: 303+50.31' RT		EXPLORATION ID								
TYPE: ROADWAY		SAMPLING FIRM / LOGGER: S&ME / M. TORRES		ALIGNMENT: FLEET DR		B-202								
PID: BR ID: 12/9/19		DRILLING METHOD: 4.5" CFA		ELEVATION: 927.1 (MSL)		PAGE								
START: 12/9/19 END: 12/9/19		SAMPLING METHOD: SPT		LAT / LONG: 40.096131 N, -83.162782 W		1 OF 1								
MATERIAL DESCRIPTION AND NOTES		ELEV.		GRADATION (%)		ATTERBERG		ODOT CLASS (GI)		SO4 ppm		BACK FILL		
						GR CS FS SI CL		LL PL PI WC						
						HP (tsf)								
						REC SAMPLE ID								
						N ₆₀								
						SPT/RQD								
						DEPTHS								
ASPHALT - 3-3/4 INCHES GRANULAR BASE - 6-1/2 INCHES Very-stiff brown mottled with reddish-brown SILT AND CLAY , little fine to coarse sand, trace to little fine to coarse gravel, damp.		927.1	1	3										
		926.8	2	5										
		926.3	3	8										
			4	7										
			5	8										
		921.6	6	3										
			7	4										
			8	8										
		919.1	9	6										
		917.9	10	11										
917.1	EOB	16												

- Encountered slight seepage at 8.5'.
- Boring was dry at completion.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE



S&ME JOB: 1117-19-057

PROJECT: SHIER RINGS/AVERY IMPR.		DRILLING FIRM / OPERATOR: S&ME / D. GODWIN		STATION / OFFSET: 214+07.7' LT		EXPLORATION ID													
TYPE: ROADWAY		SAMPLING FIRM / LOGGER: S&ME / D. GODWIN		ALIGNMENT: CL SHIER RINGS		B-203													
PID: BR ID: 12/10/19		DRILLING METHOD: 4.5" CFA		ELEVATION: 924.6 (MSL) EOB: 7.0 ft.		PAGE													
START: 12/10/19 END: 12/10/19		SAMPLING METHOD: SPT		LAT / LONG: 40.095323 N, -83.160759 W		1 OF 1													
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/RQD	N ₆₀	REC SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL
ASPHALT - 9-3/4 INCHES		924.6	1	2	12	SS-1	2.0-3.5	3	5	12	37	43	41	18	23	21	A-7-6 (13)	-	<LV>
GRANULAR BASE - 7 INCHES		923.8	2	3	56	SS-1	2.0-3.5												<LV>
Very-stiff brown, reddish-brown, and gray CLAY, "and" silt, little fine to coarse sand, trace fine gravel, moist.		923.1	3	5	30	SS-2	2.5-3.5									17	A-6b (V)	-	<LV>
Very-stiff to hard brown, reddish-brown and gray SILTY CLAY, little fine to coarse sand, trace to little fine gravel, moist to damp.		921.6	4	11	23	SS-3	3.0-4.5+									-	A-6b (V)	-	<LV>
		917.6	5	8															<LV>
			6																<LV>
			7																<LV>
			EOB																<LV>

- No seepage noted.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE



S&ME JOB: 1117-19-057

PROJECT: SHIER RINGS/AVERY IMPR.		DRILLING FIRM / OPERATOR: S&ME / D. GODWIN		DRILL RIG: S&ME CME 550X (R50)		STATION / OFFSET: 219+15.69 RT		EXPLORATION ID					
TYPE: ROADWAY		SAMPLING FIRM / LOGGER: S&ME / D. GODWIN		HAMMER: CME AUTOMATIC		ALIGNMENT: CL SHIER RINGS		B-205					
PID: BR ID: 12/10/19		DRILLING METHOD: 4.5" CFA		CALIBRATION DATE: 1/21/19		ELEVATION: 925.7 (MSL)		EOB: 12.5 ft.					
START: 12/10/19		SAMPLING METHOD: SPT		ENERGY RATIO (%): 90*		LAT / LONG:		PAGE 1 OF 1					
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC SAMPLE (%)	HP (tsf)	GRADATION (%)	ATTERBERG	WC	ODOT CLASS	SO4 ppm	BACK FILL
								GR CS FS SI CL	LL PL PI				
ROOTMAT/TOPSOIL - 7 INCHES													
Fill: Stiff to very-stiff brown and reddish-brown CLAY , "and" silt, little fine to coarse sand, trace fine gravel, damp.		925.7	1	2	6	39	1.0-4.0						<LV>
		925.1	2	2									<LV>
			3										<LV>
		922.2	4	3	18	67	1.7-4.0	2 3 8	44 44 44	25 25 21	A-7-6 (V)		<LV>
			5	5									<LV>
		920.2	6	7	23	94	3.2-4.0	- - -	27 16 11	17	A-6a (V)		<LV>
			7	8									<LV>
			8										<LV>
		915.2	9	7	14	72	1.5-3.0	- - -	- - -	-	A-6a (V)		<LV>
			10	4									<LV>
			11										<LV>
		913.2	12	7	42	83	2.2-3.0	- - -	- - -	-	A-4a (V)		<LV>
			12	12									<LV>
			EOB										<LV>

- No seepage noted.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE



S&ME JOB: 1117-19-057

PROJECT: SHIER RINGS/AVERY IMPR.		DRILLING FIRM / OPERATOR: S&ME / D. GODWIN		STATION / OFFSET: 16+24, 28' RT		EXPLORATION ID														
TYPE: ROADWAY		SAMPLING FIRM / LOGGER: S&ME / D. GODWIN		ALIGNMENT: CL AVERY RD		B-206														
PID: BR ID: 12/10/19		DRILLING METHOD: 4.5" CFA		ELEVATION: 921.9 (MSL) EOB: 7.0 ft.		PAGE														
START: 12/10/19 END: 12/10/19		SAMPLING METHOD: SPT		LAT / LONG: 40.094408 N, -83.158543 W		1 OF 1														
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/RQD	N ₆₀	REC SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL	
ASPHALT - 7 INCHES		921.9	1																	
GRANULAR BASE - 6 INCHES		921.3	2	8	15	SS-1	4.5+	10	7	11	36	36	36	17	19	18	A-6b (11)	-		
Possible Fill: Hard brown and gray SILTY CLAY, little fine to coarse sand, trace fine to coarse gravel, moist.		920.8	3	5																
Stiff to very-stiff brown, reddish-brown and gray CLAY, "and" silt, little fine to coarse sand, trace fine gravel, damp to moist.		918.9	4	7	29	SS-2	1.7-3.7	-	-	-	-	-	-	-	-	23	A-7-6 (V)	-		
Stiff brown and gray SILT AND CLAY, little fine to coarse sand, trace to little fine to coarse gravel, damp.		916.9	5	8																
		914.9	6	8	23	SS-3	1.0-1.7	-	-	-	-	-	-	-	-	-	A-6a (V)	-		
			7	8	8															
			EOB																	

- No seepage noted.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE



S&ME JOB: 1117-19-057

PROJECT: SHIER RINGS/AVERY IMPR.		DRILLING FIRM / OPERATOR: S&ME / D. GODWIN		STATION / OFFSET: 226+19, 7' LT		EXPLORATION ID																
TYPE: ROADWAY		SAMPLING FIRM / LOGGER: S&ME / D. GODWIN		ALIGNMENT: CL SHIER RINGS		B-208																
PID: BR ID: 12/10/19		DRILLING METHOD: 4.5" CFA		ELEVATION: 922.0 (MSL) EOB: 7.0 ft.		PAGE																
START: 12/10/19 END: 12/10/19		SAMPLING METHOD: SPT		LAT / LONG: 40.095657 N, -83.156447 W		1 OF 1																
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/RQD	N ₆₀	REC SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL			
ASPHALT - 10 INCHES GRANULAR BASE - 7 INCHES Very-stiff to hard brown, dark-brown and gray CLAY, some to "and" silt, little fine to coarse sand, trace fine gravel, few iron oxide stains, damp.		922.0	1																			
		921.2	2	3	17	SS-1	3.0-3.5	4	5	9	39	43	41	16	25	19	A-7-6 (14)	-				
		920.6	3	7	29	SS-2	4.5+	-	-	-	-	-	-	-	-	-	23	A-7-6 (V)	-			
			4																			
			5																			
			6			5	20	SS-3	2.5-3.75	-	-	-	-	-	-	-	-	-	A-7-6 (V)	-		
			7	915.0	EOB	7	7															

- No seepage noted.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE



S&ME JOB: 1117-19-057

PROJECT: SHIER RINGS/AVERY IMPR.		DRILLING FIRM / OPERATOR: S&ME / P. TUTTLE		DRILL RIG: S&ME D50 (R-63)		STATION / OFFSET: 185+41, 789' RT		EXPLORATION ID												
TYPE: ROADWAY		SAMPLING FIRM / LOGGER: S&ME / P. TUTTLE		HAMMER: CME AUTOMATIC		ALIGNMENT: CL UNIVERSITY		B-210												
PID: BR ID: 11/25/19		DRILLING METHOD: 3.25" HSA		CALIBRATION DATE: 10/20/17		ELEVATION: 933.1 (MSL)		EOB: 15.0 ft.												
START: 11/25/19		SAMPLING METHOD: SPT		ENERGY RATIO (%): 77.8		LAT / LONG: 40.094981 N, -83.171289 W		PAGE 1 OF 1												
MATERIAL DESCRIPTION AND NOTES		ELEV.	DEPTHS	SPT/RQD	N ₆₀	REC SAMPLE (%)	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	BACK FILL	
Very-stiff to hard dark-brown becoming brown SILTY CLAY , some silt, little fine to coarse sand, trace fine gravel, few roots, slightly organic, damp.	933.1	1	7	21	56	2.5-4.5+													<LV>	
	932.9	2	7	9												20	A-6b (V)		<LV>	
	930.1	3																	<LV>	
Very-stiff to hard brown SILT AND CLAY , some fine to coarse sand, trace fine gravel, damp.	925.1	4	5	16	78	2.5-4.5										13	A-6a (V)		<LV>	
		5	7																	<LV>
		6	5	13	72	2.0-4.0					13	39	31							<LV>
Very-stiff to hard brown SANDY SILT , some clay, trace to little fine to coarse gravel, damp.	921.1	7	5	5																<LV>
		8																		<LV>
		9	6	22	94	4.0-4.5+														<LV>
Hard brown mottled with gray SILTY CLAY , some fine to coarse sand, trace fine to coarse gravel, few pockets of fine to medium sand, damp.	918.1	10	11	25	67	4.5+														<LV>
		11	7																	<LV>
		12	12																	<LV>
			14	7																<LV>
			15	12																<LV>
			EOB																	<LV>

- No seepage noted.

NOTES: NONE
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLASTIC HOLE PLUG; SOIL CUTTINGS MIXED WITH BENTONITE



Important Information About Your Geotechnical Engineering Report

Variations in subsurface conditions can be a principal cause of construction delays, cost overruns and claims. The following information is provided to assist you in understanding and managing the risk of these variations.

Geotechnical Findings Are Professional Opinions

Geotechnical engineers cannot specify material properties as other design engineers do. Geotechnical material properties have a far broader range on a given site than any manufactured construction material, and some geotechnical material properties may change over time because of exposure to air and water, or human activity.

Site exploration identifies subsurface conditions at the time of exploration and only at the points where subsurface tests are performed or samples obtained. Geotechnical engineers review field and laboratory data and then apply their judgment to render professional opinions about site subsurface conditions. Their recommendations rely upon these professional opinions. Variations in the vertical and lateral extent of subsurface materials may be encountered during construction that significantly impact construction schedules, methods and material volumes. While higher levels of subsurface exploration can mitigate the risk of encountering unanticipated subsurface conditions, no level of subsurface exploration can eliminate this risk.

Geotechnical Findings Are Professional Opinions

Professional geotechnical engineering judgment is required to develop a geotechnical exploration scope to obtain information necessary to support design and construction. A number of unique project factors are considered in developing the scope of geotechnical services, such as the exploration objective; the location, type, size and weight of the proposed structure; proposed site grades and improvements; the construction schedule and sequence; and the site geology.

Geotechnical engineers apply their experience with construction methods, subsurface conditions and exploration methods to develop the exploration scope. The scope of each exploration is unique based on available project and site information. Incomplete project information or constraints on the scope of exploration increases the risk of variations in subsurface conditions not being identified and addressed in the geotechnical report.

Services Are Performed for Specific Projects

Because the scope of each geotechnical exploration is unique, each geotechnical report is unique. Subsurface conditions are explored and recommendations are made for a specific project.

Subsurface information and recommendations may not be adequate for other uses. Changes in a proposed structure location, foundation loads, grades, schedule, etc. may require additional geotechnical exploration, analyses, and consultation. The geotechnical engineer should be consulted to determine if additional services are required in response to changes in proposed construction, location, loads, grades, schedule, etc.

Geo-Environmental Issues

The equipment, techniques, and personnel used to perform a geo-environmental study differ significantly from those used for a geotechnical exploration. Indications of environmental contamination may be encountered incidental to performance of a geotechnical exploration but go unrecognized. Determination of the presence, type or extent of environmental contamination is beyond the scope of a geotechnical exploration.

Geotechnical Recommendations Are Not Final

Recommendations are developed based on the geotechnical engineer's understanding of the proposed construction and professional opinion of site subsurface conditions. Observations and tests must be performed during construction to confirm subsurface conditions exposed by construction excavations are consistent with those assumed in development of recommendations. It is advisable to retain the geotechnical engineer that performed the exploration and developed the geotechnical recommendations to conduct tests and observations during construction. This may reduce the risk that variations in subsurface conditions will not be addressed as recommended in the geotechnical report.



Appendix B

Project #1 GB1 Spreadsheets	1-5
Project #2 GB1 Spreadsheets	6-10



OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

**PLAN SUBGRADES
Geotechnical Bulletin GB1**

**Shier Rings Realignment
<PID>**

New University Blvd Alignment and Realignment of Shier Rings

S&ME, Inc

Prepared By: Christopher West, P.E.
Date prepared: Tuesday, January 28, 2020

**Christopher West
6190 Enterprise Ct
Dublin, OH 43016**

**614-793-2226
cwest@smeinc.com**

NO. OF BORINGS: **11**



#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL.	Cut Fill
1	B-101	University Blvd	167+40	4	Lt	S&ME CME 550/R-50	90	938.6	937.5	1.1 C
2	B-102	Eiterman Road	91+96	10	Rt	S&ME CME 550/R-50	90	938.7	937.7	1.0 C
3	B-103	University Blvd	172+34	3	Rt	S&ME CME 550/R-50	90	936.7	937.2	0.5 F
4	B-104	University Blvd	175+70	1	Rt	S&ME CME 550/R-50	90	938.1	936.9	1.2 C
5	B-105	University Blvd	180+50	2	Rt	S&ME D50/R-63	90	935.0	935.3	0.3 F
6	B-106	University Blvd	185+55	1	Lt	S&ME CME 550/R-63	90	933.9	934.1	0.2 F
7	B-107	University Blvd	190+50	3	Rt	S&ME CME 550/R-63	90	929.4	931.1	1.7 F
8	B-108	University Blvd	195+23	0	Rt	S&ME CME 550/R-63	90	928.2	928.2	0.0
9	B-109	University Blvd	198+37	128	Rt	S&ME CME 550/R-63	90	927.6	930.7	3.1 F
10	B-110	University Blvd	200+14	100	Rt	S&ME CME 550/R-63	90	926.3	929.7	3.4 F
11	B-111	University Blvd	204+38	13	Rt	S&ME CME 550/R-50	90	925.7	927.3	1.6 F

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem			Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)		
			From	To	From	To	N ₆₀	N _{60L}		LL	PL	PI	% Silt	% Clay	P200	M _c	M _{opr}	Class	GI		Unsuitable	Unsuitable	Unstable	Unstable	Unstable			
1	B	SS-1	1.5	3.0	0.4	1.9	11		2	38	16	22	42	38	80	24	16	A-6b	13	146	Unsuitable	Unstable	Unstable	12"	Exc & Replace 12" 204 Geotextile			
		SS-2	3.0	4.5	1.9	3.4	14		1.2							30	18	A-7-6	16									
		SS-3	5.5	7.0	4.4	5.9	12		1.2								18	A-7-6	16									
2	B	SS-1	1.5	3.0	0.5	2.0	38									5	6	A-1-b	0									
		SS-2	3.0	4.5	2.0	3.5	15		1	26	16	10	36	30	66	18	11	A-4a	6									
		SS-3	5.5	7.0	4.5	6.0	11		1.2								18	A-7-6	16									
3	B	SS-1	1.5	3.0	2.0	3.5	9		1.7	51	20	31	42	48	90	26	18	A-7-6	18							Test Roll (New Fill)		
		SS-2	3.0	4.5	3.5	5.0	15		2	45	18	27				23	18	A-7-6	16									
		SS-3	5.5	7.0	6.0	7.5	11		2							18	18	A-7-6										
4	B	SS-1	1.5	3.0	0.3	1.8	19		2	39	19	20	38	37	75	19	16	A-6b	12							Item 204.03 (Cut Area)		
		SS-2	3.0	4.5	1.8	3.3	11		4.5							11	14	A-6a	10									
		SS-3	5.5	7.0	4.3	5.8			4.5								14	A-6a	10									
5	B	SS-1	1.0	2.5	1.3	2.8	18		2.5	52	19	33	42	48	90	24	18	A-7-6	18	128						Test Roll (New Fill)		
		SS-2	3.5	5.0	3.8	5.3	18		4.5							12	14	A-6a	10									
		SS-3	6.0	7.5	6.3	7.8	24		4.2				32	27	59		14	A-6a										
		SS-4	8.5	10.0	8.8	10.3	80	18									10	A-4a										
6	B	SS-1	1.0	2.5	1.2	2.7	24		2.5	31	17	14	35	32	67	15	14	A-6a	8									
		SS-2	3.5	5.0	3.7	5.2	39		4.5							12	14	A-6a	10									
		SS-3	6.0	7.5	7.7	9.2	14		4							14	A-6a											
		SS-4	8.5	10.0	8.7	10.2	62	24		2						33	25	58	11	14	A-6a							
7	B	SS-1	1.0	2.5	2.7	4.2	14		2.5	57	22	35	34	52	86	26	19	A-7-6	19									
		SS-2	3.5	5.0	5.2	6.7	14		3							22	18	A-7-6										
		SS-3	6.0	7.5	7.7	9.2	14		4.5								10	A-4a										
		SS-4	8.5	10.0	10.2	11.7	17	14		2	23	14	9				16	10	A-4a									
8	B	SS-1	1.0	2.5	1.0	2.5	21		3.2	44	18	26	37	43	80	20	18	A-7-6	15									
		SS-2	3.5	5.0	3.5	5.0	44		4.5							12	14	A-6a	10									
		SS-3	6.0	7.5	6.0	7.5	24		4.5							10	A-4a											
		SS-4	8.5	10.0	8.5	10.0	23	21		4.5						37	29	66	14	10	A-4a							
9	B	SS-1	1.0	2.5	4.1	5.6	20		3.2	50	19	31	41	48	89	19	18	A-7-6	18									
		SS-2	2.5	4.0	5.6	7.1	21		4.5							12	14	A-6a										
		SS-3	6.0	7.5	9.1	10.6	15		4							13	14	A-6a										
		SS-4	7.5	9.0	10.6	12.1	12	20		2						56	14	A-6a										
10	B	SS-1	1.0	2.5	4.4	5.9	9		2.7	53	24	29	46	43	89	25	21	A-7-6	18	16								
		SS-2	2.5	4.0	5.9	7.4	9		4.5							21	18	A-7-6										
		SS-3	6.0	7.5	9.4	10.9	20		1.5							14	10	A-4a										
		SS-4	7.5	9.0	10.9	12.4	12	9		2.5	25	17	8	45	24	69	15	12	A-4a									
11	B	SS-1	1.5	3.0	3.1	4.6	14		1.7	40	19	21	39	35	74	22	16	A-6b	12									
		SS-2	3.0	4.5	4.6	6.1	17		2							25	18	A-7-6	16									
		SS-3	6.0	7.5	7.6	9.1	6		0.5							33	32	65	19	14	A-6a							
		SS-4	8.5	10.0	10.1	11.6	17	14		1							14	A-6a										

PID: <PID>

County-Route-Section: Shier Rings Realignment

No. of Borings: 11

Geotechnical Consultant: S&ME, Inc

Prepared By: Christopher West, P.E.

Date prepared: 1/28/2020

Chemical Stabilization Options		
320	Rubblize & Roll	Option
206	Cement Stabilization	No
	Lime Stabilization	Option
206	Depth	12"

Excavate and Replace Stabilization Options	
Global Geotextile Average(N60L):	12"
Override(HP):	12"
Global Geogrid Average(N60L):	0"
Override(HP):	0"

Design CBR	5
-----------------------	----------

% Samples within 6 feet of subgrade			
$N_{60} \leq 5$	0%	$HP \leq 0.5$	0%
$N_{60} < 12$	26%	$0.5 < HP \leq 1$	4%
$12 \leq N_{60} < 15$	19%	$1 < HP \leq 2$	37%
$N_{60} \geq 20$	30%	$HP > 2$	52%
M+	22%		
Rock	0%		
Unsuitable	0%		

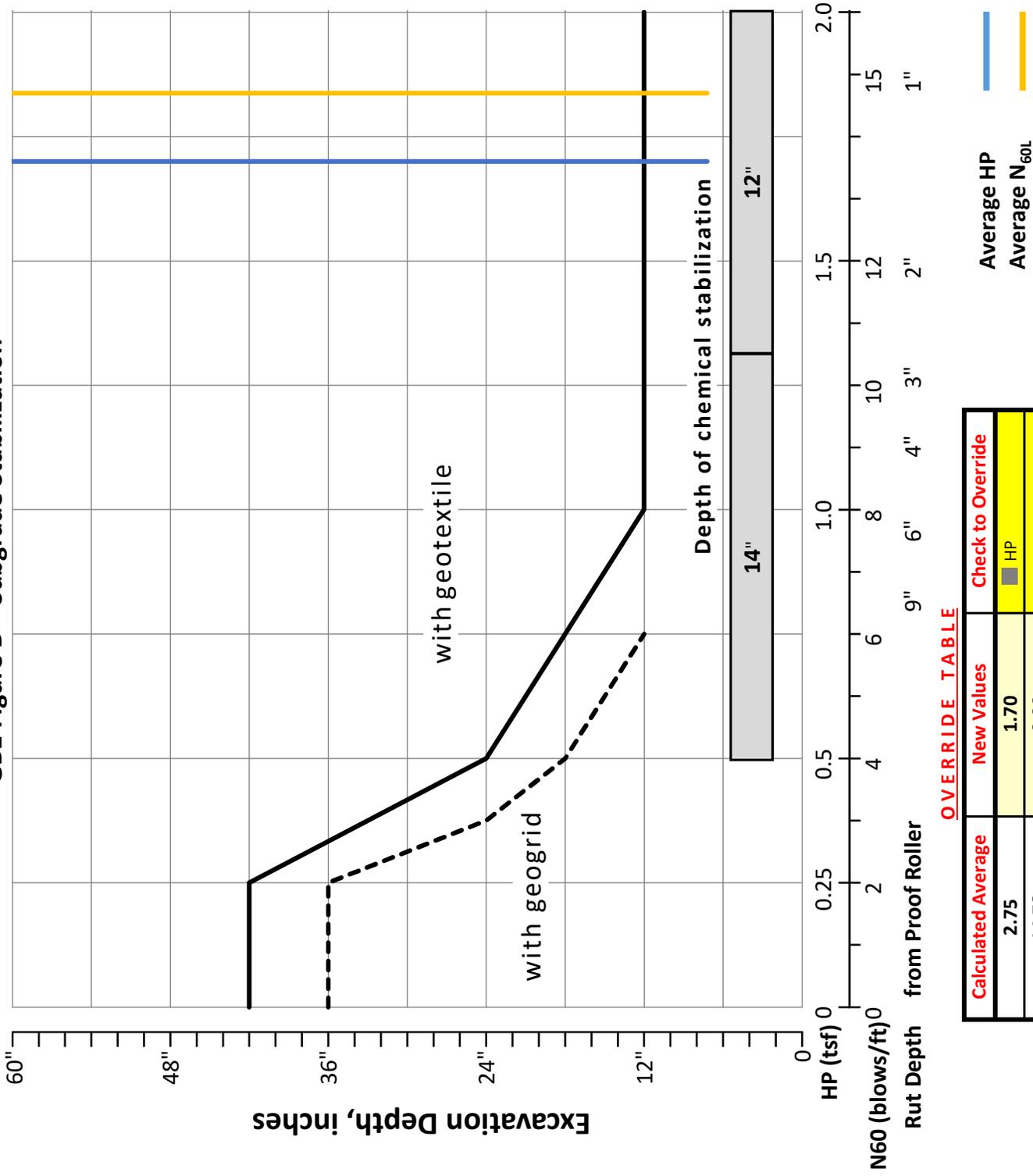
Excavate and Replace at Surface	
Average	0"
Maximum	0"
Minimum	0"

% Proposed Subgrade Surface	
Unstable & Unsuitable	64%
Unstable	64%
Unsuitable	0%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_c	M_{OPT}	GI
Average	21	15	2.75	41	18	23	37	36	73	18	15	13
Maximum	80	24	4.50	57	24	35	46	52	90	30	21	19
Minimum	6	9	0.50	23	14	8	29	24	56	5	6	0

Classification Counts by Sample																			
ODOT Class	Rock	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-3	A-3a	A-4a	A-4b	A-5	A-6a	A-6b	A-7-5	A-7-6	A-8a	A-8b	Totals
Count	0	0	1	0	0	0	0	0	0	8	0	0	14	3	0	14	0	0	40
Percent	0%	0%	3%	0%	0%	0%	0%	0%	0%	20%	0%	0%	35%	8%	0%	35%	0%	0%	100%
% Rock Granular Cohesive	0%	23%										78%							100%
Surface Class Count	0	0	1	0	0	0	0	0	0	1	0	0	2	2	0	5	0	0	11
Surface Class Percent	0%	0%	9%	0%	0%	0%	0%	0%	0%	9%	0%	0%	18%	18%	0%	45%	0%	0%	100%

GB1 Figure B – Subgrade Stabilization





OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

**PLAN SUBGRADES
Geotechnical Bulletin GB1**

**Shier Rings/Avery Intersection
<PID>**

Improvements to Intersection of Shier Rings and Avery Roads

S&ME, Inc

Prepared By: Christopher West, P.E.
Date prepared: Tuesday, January 28, 2020

**S&ME, Inc.
6190 Enterprise Ct
Dublin, OH 43016

614-793-2226
cwest@smeinc.com**

NO. OF BORINGS: **7**



#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL.	Cut Fill
1	B-201	Shier Rings	209+27	9	Lt	S&ME CME 550/R-50	90	924.0	924.2	0.2 F
2	B-202	Fleet Drive	303+50	31	Rt	S&ME CME 550/R-50	90	927.1	925.5	1.6 C
3	B-203	Shier Rings	214+07	7	Lt	S&ME CME 550/R-50	90	924.6	923.9	0.7 C
4	B-204	Avery Road	22+82	63	Lt	S&ME CME 550/R-50	90	924.5	922.7	1.8 C
5	B-205	Shier Rings	219+15	69	Rt	S&ME CME 550/R-50	90	925.7	921.0	4.7 C
6	B-207	Shier Rings	222+92	106	Lt	S&ME CME 550/R-50	90	922.8	920.5	2.3 C
7	B-208	Shier Rings	226+19	7	Lt	S&ME CME 550/R-50	90	922.0	921.7	0.3 C

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (item 204)		Recommendation (Enter depth in inches)			
			From	To	From	To	N ₆₀	N _{60L}		LL	PL	PI	% Silt	% Clay	P200	M _c	M _{OPR}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable				
1	B 201	SS-1	1.5	3.0	1.7	3.2	14		1.5	54	18	36	38	53	91	26	18	A-7-6	19							Test Roll (New Fill)		
		SS-2	3.0	4.5	3.2	4.7	14		1							26	18	A-7-6	16									
		SS-3	6.0	7.5	6.2	7.7	18		1.2				22	13	35	11	10	A-2-4										
		SS-4	7.5	9.0	7.7	9.2	15	14	2.2				35	24	59		10	A-4a										
2	B 202	SS-1	1.0	2.5	-0.6	0.9	20		3.5								18	A-7-6	16									
		SS-2	3.5	4.0	1.9	2.4	23		2.7								14	A-6a	10									
		SS-3	6.0	7.5	4.4	5.9	18		2.2	26	16	10				15	11	A-4a	8									
		SS-4	8.5	9.0	6.9	7.4	41	18					45	9	54		10	A-4a										
3	B 203	SS-1	1.5	3.0	0.8	2.3	12		2	41	18	23	37	43	80	21	18	A-7-6	13							Exc. & Replace 12" 204 Geotextile		
		SS-2	3.0	4.5	2.3	3.8	30		2.5							17	16	A-6b	16									
		SS-3	5.5	7.0	4.8	6.3	23	12	3								16	A-6b	16									
4	B 204	SS-1	1.5	3.0	-0.3	1.2	8		1	50	20	30	44	48	92	24	18	A-7-6	18							Exc. & Replace 12" 204 Geotextile		
		SS-2	3.0	4.5	1.2	2.7	14		2.2	27	15	12				17	14	A-6a	9									
		SS-3	5.5	7.0	3.7	5.2	17	8	0.7								16	A-6b	16									
5	B 205	SS-1	1.0	2.5	-3.7	-2.2	6		1								18	A-7-6	16							Exc. & Replace 12" 204 Geotextile		
		SS-2	4.0	5.5	-0.7	0.8	18		1.7	44	19	25	43	44	87	21	18	A-7-6	15									
		SS-3	5.5	7.0	0.8	2.3	23		3.2	27	16	11				17	14	A-6a	8									
		SS-4	8.5	10.0	3.8	5.3	14	14	1.5								14	A-6a	10									
6	B 207	SS-1	2.0	3.5	-0.3	1.2	15		2.2	49	19	30	37	48	85		18	A-7-6	18							Exc. & Replace 12" 204 Geotextile		
		SS-2	3.5	5.0	1.2	2.7	11									6	A-1-b	0										
		SS-3	6.0	7.5	3.7	5.2	14		3				34	23	57		10	A-4a	8									
		SS-4	8.5	10.0	6.2	7.7	18	11	2.5								10	A-4a										
7	B 208	SS-1	1.5	3.0	1.2	2.7	17		3	41	16	25	39	43	82		18	A-7-6	14							Exc. & Replace 12" 204 Geotextile		
		SS-2	3.0	4.5	2.7	4.2	29		4.5								18	A-7-6	16									
		SS-3	5.5	7.0	5.2	6.7	20	17	2.5								18	A-7-6										
																10	A-4a											

PID: <PID>

County-Route-Section: Shier Rings/Avery Intersection

No. of Borings: 7

Geotechnical Consultant: S&ME, Inc

Prepared By: Christopher West, P.E.

Date prepared: 1/28/2020

Chemical Stabilization Options		
320	Rubblize & Roll	Option
206	Cement Stabilization	No
	Lime Stabilization	Option
206	Depth	12"

Excavate and Replace Stabilization Options	
Global Geotextile Override(N60L):	18"
Override(HP):	12"
Global Geogrid Override(N60L):	12"
Override(HP):	0"

Design CBR	5
-----------------------	----------

% Samples within 6 feet of subgrade			
$N_{60} \leq 5$	0%	$HP \leq 0.5$	0%
$N_{60} < 12$	10%	$0.5 < HP \leq 1$	15%
$12 \leq N_{60} < 15$	30%	$1 < HP \leq 2$	20%
$N_{60} \geq 20$	35%	$HP > 2$	60%
M+	30%		
Rock	0%		
Unsuitable	0%		

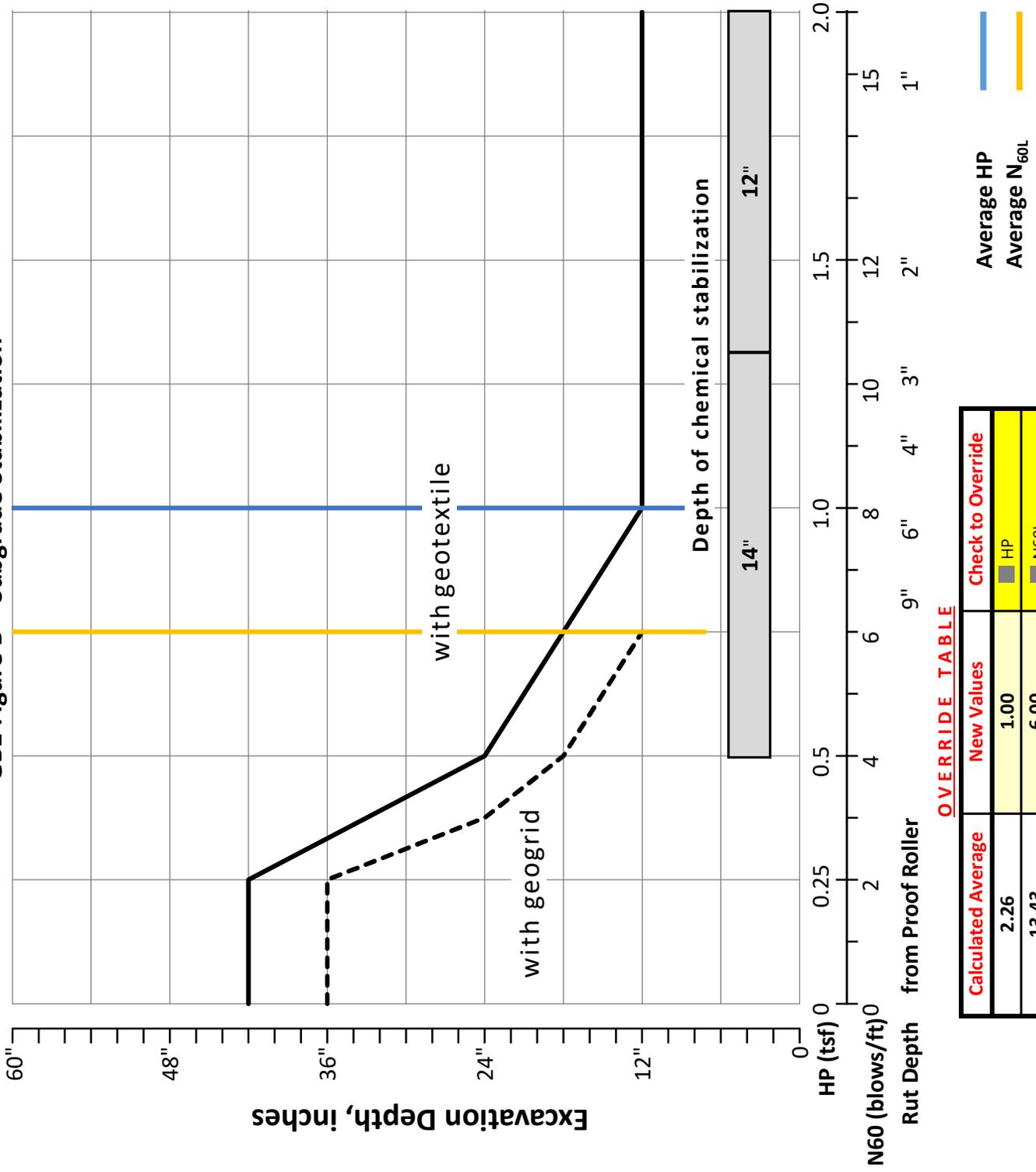
Excavate and Replace at Surface	
Average	0"
Maximum	0"
Minimum	0"

% Proposed Subgrade Surface	
Unstable & Unsuitable	43%
Unstable	43%
Unsuitable	0%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_c	M_{OPT}	GI
Average	19	13	2.26	40	17	22	37	35	72	20	15	13
Maximum	41	18	4.50	54	20	36	45	53	92	26	18	19
Minimum	6	8	0.70	26	15	10	22	9	35	11	6	0

Classification Counts by Sample																			
ODOT Class	Rock	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-3	A-3a	A-4a	A-4b	A-5	A-6a	A-6b	A-7-5	A-7-6	A-8a	A-8b	Totals
Count	0	0	1	1	0	0	0	0	0	5	0	0	4	3	0	10	0	0	24
Percent	0%	0%	4%	4%	0%	0%	0%	0%	0%	21%	0%	0%	17%	13%	0%	42%	0%	0%	100%
% Rock Granular Cohesive	0%	29%										71%							100%
Surface Class Count	0	0	1	0	0	0	0	0	0	0	0	0	3	1	0	9	0	0	14
Surface Class Percent	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	21%	7%	0%	64%	0%	0%	100%

GB1 Figure B – Subgrade Stabilization





Appendix C

Scour Zone Gradation Test Results Letter 1-2



January 6, 2020

EMH&T, Inc.
5500 New Albany Road
Columbus, OH 43054

Attention: Mr. Michael R. Brehm, P.E.

Reference: **Preliminary Scour Zone Gradation Test Results**
Shier Rings Rd. Realignment
Proposed Shier Rings Road over Realigned Cosgray Ditch
Dublin, Ohio
S&ME Project No. 1117-19-056

Mr. Brehm:

S&ME is herewith providing the results of laboratory grain-size testing performed on samples of soil recovered from Borings B-109 and B-110 which were drilled near the inlet and outlet ends of the proposed 3-sided culvert which will carry the proposed Shier-Rings Road over realigned Cosgray Ditch in Dublin, Ohio. The table on the following page presents the D_{50} and D_{95} particle sizes obtained from the gradation testing performed on soil samples recovered from the continuously sampled scour zone in Borings B-109 and B-110.

Please call if you have any questions, or if we can provide any other preliminary information that would be of assistance.

Respectfully,

S&ME, Inc.

Handwritten signature of Christopher West in blue ink.

Christopher West, P.E.
Project Engineer

Handwritten signature of Richard S. Weigand in blue ink.

Richard S. Weigand, P.E.
Senior Engineer/Senior Reviewer

Attachment (1 sheet)

ec: R. Ely, EMH&T, Inc.



**PRELIMINARY SCOUR ZONE GRAIN-SIZE INFORMATION
BORING B-009 AND BORING B-110
SHIER-RINGS ROAD OVER COSGRAY DITCH
PROPOSED 3-SIDED CULVERT**

Boring Number	Location	Top of Boring Elevation	Sample Depth (ft.)	Sample Elevation	D₅₀ (mm)	D₉₅ (mm)
B-109	Inlet End	927.6	6.0 - 7.5	920.1 - 921.6	0.0375	19.4942
			7.5 - 9.0	918.6 - 920.1	0.0425	19.5184
			9.0 - 10.5	917.1 - 918.6	0.0191	20.8015
			10.5 - 13.0	914.6 - 917.1	0.0630	17.0074
B-110	Outlet End	926.3	6.0 - 7.5	920.1 - 921.6	0.0250	3.0143
			7.5 - 9.0	918.6 - 920.1	0.0251	4.0072
			9.0 - 10.5	917.1 - 918.6	0.0581	12.0994



Appendix D

Email Submission.....	1
Topsoil Testing Results	2-10

Richard S Weigand

From: Richard S Weigand
Sent: Tuesday, December 31, 2019 1:01 PM
To: Brehm, Michael (mbrehm@emht.com); Hager, Chelsea
Subject: Cosgray Ditch Topsoil Testing
Attachments: Shier-Rings Reloc Ditch Topsoil Test Results (B209 B210 B211) .pdf

Mike/Chelsea,

Attached are the results of the testing performed on topsoil samples retrieved from 3 borings along the relocated Cosgray Ditch. Please let me know if you have any questions.

Rich Weigand

Senior Engineer/Project Manager



S&ME
6190 Enterprise Court
Dublin, OH 43016 [map](#)
O: 614.793.2226
M: 614.205.7919
www.smeinc.com
[LinkedIn](#) | [Twitter](#) | [Facebook](#)

This electronic message is subject to the terms of use set forth at www.smeinc.com/email. If you received this message in error please advise the sender by reply and delete this electronic message and any attachments. Please consider the environment before printing this email.

SOIL TEST RESULTS

* All soil tests were conducted by an independent, third-party laboratory.

Project:	5092-0002-1
* Project Name:	Shier Rings Rd
Project Number:	111719056
File #:	111719056
Location:	Shier Rings Road Franklin, Ohio United States
Notes:	This area of the project is for realigning a drainage swale/stream. Topsoil is anticipated to be stripped, stockpiled, and replaced along reconstructed stream channel. Looking for suitable planting mix and any required amendments. Native plantings preferred. Testing desired to meet requirements of ODOT CMS 659.02 and 659.05.

NOTE:

Sample 1 is from Boring B-209.

Sample 2 is from Boring B-210.

SOIL SAMPLE LOCATIONS AND DESCRIPTIONS

RECOMMENDED PRESCRIPTIVE AGRONOMIC FORMULATIONS BASED ON SOIL ANALYSIS

Sample	Soil Neutralizers						Growth Stimulants				Biotic Soil Media™	
	Aqua-pHix™ ¹		NeutraLime™ ²		Agricultural Lime ³		JumpStart™		BioPrime™		ProGanics™ ⁴	
	gal/ac	L/ha	lb/ac	kg/ha	lb/ac	kg/ha	gal/ac	L/ha	lb/ac	kg/ha	lb/ac	kg/ha
Boring B-209 1	0	0	40	45	0	0	2.5	23	80	90	4,000	4,480
Boring B-210 2	0	0	160	179	7405	8299	1.25	12	40	45	3,500	3,920

Notes: 1. Aqua-pHix is also available in a granular form, please contact Tech@profileproducts.com with questions. 2. NeutraLime is also available in a liquid form, please contact Tech@profileproducts.com with questions. 3. Based on 100% Calcium Carbonate Equivalent tilled in to a depth of 6in. 4. ProGanics Dual™ may be a suitable alternative to ProGanics BSM, please contact tech@profileproducts.com to receive recommendations.

FERTILIZER RECOMMENDATIONS

Sample	Crop Yield or Turf / Ornamental Code	Gypsum		Sulfur		N		P ₂ O ₅		K ₂ O	
		lb/ac	kg/ha	lb/ac	kg/ha	lb/ac	kg/ha	lb/ac	kg/ha	lb/ac	kg/ha
Boring B-209 1	TURF	0	0	0	0	117.6	131.8	95.8	107.4	126.3	141.6

Sample	Crop Yield or Turf / Ornamental Code	Gypsum		Sulfur		N		P ₂ O ₅		K ₂ O	
		lb/ac	kg/ha	lb/ac	kg/ha	lb/ac	kg/ha	lb/ac	kg/ha	lb/ac	kg/ha
Boring B-210 2	TURF	0	0	0	0	104.5	117.2	91.5	102.5	91.5	102.5

SOIL ANALYSIS RESULTS (Optimal Plant Growth Conditions)

Sample	Nitrate N ppm	Phosphorus ppm	Potassium ppm	Magnesium ppm	Calcium ppm	Sulfur ppm	Zinc ppm	Manganese ppm	Copper ppm	Iron ppm	Boron ppm
Boring B-209 1	2	6	67	189	1303	3	0.89	1.7	1.7	66.6	0.2
Boring B-210 2	1	7	118	277	2325	3	0.75	2	3.1	94.2	0.2
	(10 - 30)	IF pH ≤ 7.1 (20-40) IF pH > 7.1 (10-25)	(150 - 250)	(60 - 300)	(≥ 400)	(5 - 20)	(1.3 - 3.0)	(4.1 - 12.0)	(1.0 - 2.0)	(7.1 - 20.0)	(< 2.0)

Sample	% Organic Matter	Soil Respiration mg CO ₂ /kg soil/week ⁵	Sand %	Silt %	Clay %	Texture USDA
Boring B-209 1	1.8	0	22.8	52	25.2	Silt Loam
Boring B-210 2	3.3	0	0	0	0	0
	(> 5%)	(> 1,000)	(20 - 60%)	Silt & Clay (40 - 80%)		

Sample	% Organic Matter	Soil Respiration mg CO2/kg soil/week ^s	Sand %	Silt %	Clay %	Texture USDA
--------	------------------	--	--------	--------	--------	--------------

Notes: 5. Soil Respiration ppm = mg/kg

Sample	Soil pH ⁶	Buffer Index	TDS ⁷	Soluble Salts mmhos/cm	Sodium ppm	SAR ⁸	Bulk Density g/cm ³	oz/in ³
Boring B-209	5.9	6.8	70.4	0.17	8	0.27	1.21	0.7
Boring B-210	5.3 (6.3 - 7.3)	6.4	64 (<256)	0.27 (<0.75)	10	0.18 (<2)	1.08	0.62

Notes: 6. Contact Tech@profileproducts.com if pH is < 4.2 or > 9.2 for specific site recommendation. 7. Total Dissolved Salts. 8. Sodium Adsorption Ratio.

Sample	Cation Exchange Capacity: Actual % of Total CEC						Saturated Paste Extract Results					
	% K	% Mg	% Ca	% Na	% H	Total CEC	Bicarbonate ppm	Chloride ppm	Silicon ppm	SO ₄ ppm	Zinc ppm	
Boring B-209	1.5	14.2	58.8	0.3	25.1	11.1	17.7	10.1	58.1	12	0	
Boring B-210	1.4 (3 - 7%)	10.6 (15 - 20%)	53.6 (65 - 75%)	0.2 (0 - 4%)	34.2 (0 - 5%)	21.7 (10 - 30)	17.1	12.5	76.1	11.1	0.1	

For full overview of all soil testing methods and their interpretation please click on this link for the [Profile Technical Document - Soil Testing and Interpretation](#)

GENERAL FERTILIZATION GUIDANCE

- Fertilizer recommendations are based on annual requirements for turfgrass species. Application rates should be adjusted to account for annual application time, seasonality and vegetation that is being planted.
- Contact your seed supplier for specific recommendations that are applicable to your seed blend, area, and climate.
- Values shown above for Macro and Micro Nutrients should be reviewed by a local agronomist prior to making any general fertilization recommendations.

SOIL TEST RESULTS

* All soil tests were conducted by an independent, third-party laboratory.

Project:	5092-0001-1
* Project Name:	Shier Rings Road Infrastructure
Project Number:	1117-19-057
File #:	1117-19-057
Location:	Shier Rings Road Franklin, Ohio United States
Notes:	This area of the project is for realigning a drainage swale/stream. Topsoil is anticipated to be stripped, stockpiled, and replaced along reconstructed stream channel. Looking for suitable planting mix and any required amendments. Native plantings preferred. Testing desired to meet requirements of ODOT CMS 659.02 and 659.05.

NOTE:

Sample 1 is from Boring B-211.

SOIL SAMPLE LOCATIONS AND DESCRIPTIONS

RECOMMENDED PRESCRIPTIVE AGRONOMIC FORMULATIONS BASED ON SOIL ANALYSIS

Sample	Soil Neutralizers						Growth Stimulants				Biotic Soil Media™	
	Aqua-pHix™ ¹		NeutraLime™ ²		Agricultural Lime ³		JumpStart™		BioPrime™		ProGanics™ ⁴	
	gal/ac	L/ha	lb/ac	kg/ha	lb/ac	kg/ha	gal/ac	L/ha	lb/ac	kg/ha	lb/ac	kg/ha
Boring B-211 1	0	0	0	0	0	0	2.5	23	80	90	4,000	4,480

Notes: 1. Aqua-pHix is also available in a granular form, please contact Tech@profileproducts.com with questions. 2. NeutraLime is also available in a liquid form, please contact Tech@profileproducts.com with questions. 3. Based on 100% Calcium Carbonate Equivalent tilled in to a depth of 6in. 4. ProGanics Dual™ may be a suitable alternative to ProGanics BSM, please contact tech@profileproducts.com to receive recommendations.

FERTILIZER RECOMMENDATIONS

Sample	Crop Yield or Turf / Ornamental Code	Gypsum		Sulfur		N		P ₂ O ₅		K ₂ O	
		lb/ac	kg/ha	lb/ac	kg/ha	lb/ac	kg/ha	lb/ac	kg/ha	lb/ac	kg/ha
Boring B-211 1	TURF	0	0	0	0	122	136.7	95.8	107.4	113.3	126.9

SOIL ANALYSIS RESULTS (Optimal Plant Growth Conditions)

Sample	Nitrate N ppm	Phosphorus ppm	Potassium ppm	Magnesium ppm	Calcium ppm	Sulfur ppm	Zinc ppm	Manganese ppm	Copper ppm	Iron ppm	Boron ppm
Boring B-211 1	1	6	89	275	1498	2	0.52	2.2	1.6	36.7	0.2
	(10 - 30)	IF pH ≤ 7.1 (20-40) IF pH > 7.1 (10-25)	(150 - 250)	(60 - 300)	(≥ 400)	(5 - 20)	(1.3 - 3.0)	(4.1 - 12.0)	(1.0 - 2.0)	(7.1 - 20.0)	(< 2.0)

Sample	% Organic Matter	Soil Respiration mg CO2/kg soil/week ⁵	Sand %	Silt %	Clay %	Texture USDA
Boring B-211 1	1.7	0	64.8	6	29.2	Sandy Clay Loam
	(> 5%)	(> 1,000)	(20 - 60%)	Silt & Clay (40 - 80%)		

Notes: 5. Soil Respiration ppm = mg/kg

Sample	Soil pH ⁶	Buffer Index	TDS ⁷	Soluble Salts mmhos/cm	Sodium ppm	SAR ⁸	Bulk Density	
							g/cm ³	oz/in ³
Boring B-211 1	6.4	7	57.6	0.17	7	0.16	1.24	0.72
	(6.3 - 7.3)		(<256)	(< 0.75)		(<2)		

Notes: 6. Contact Tech@profileproducts.com if pH is < 4.2 or > 9.2 for specific site recommendation. 7. Total Dissolved Salts. 8. Sodium Adsorption Ratio.

**Boring
B-211**

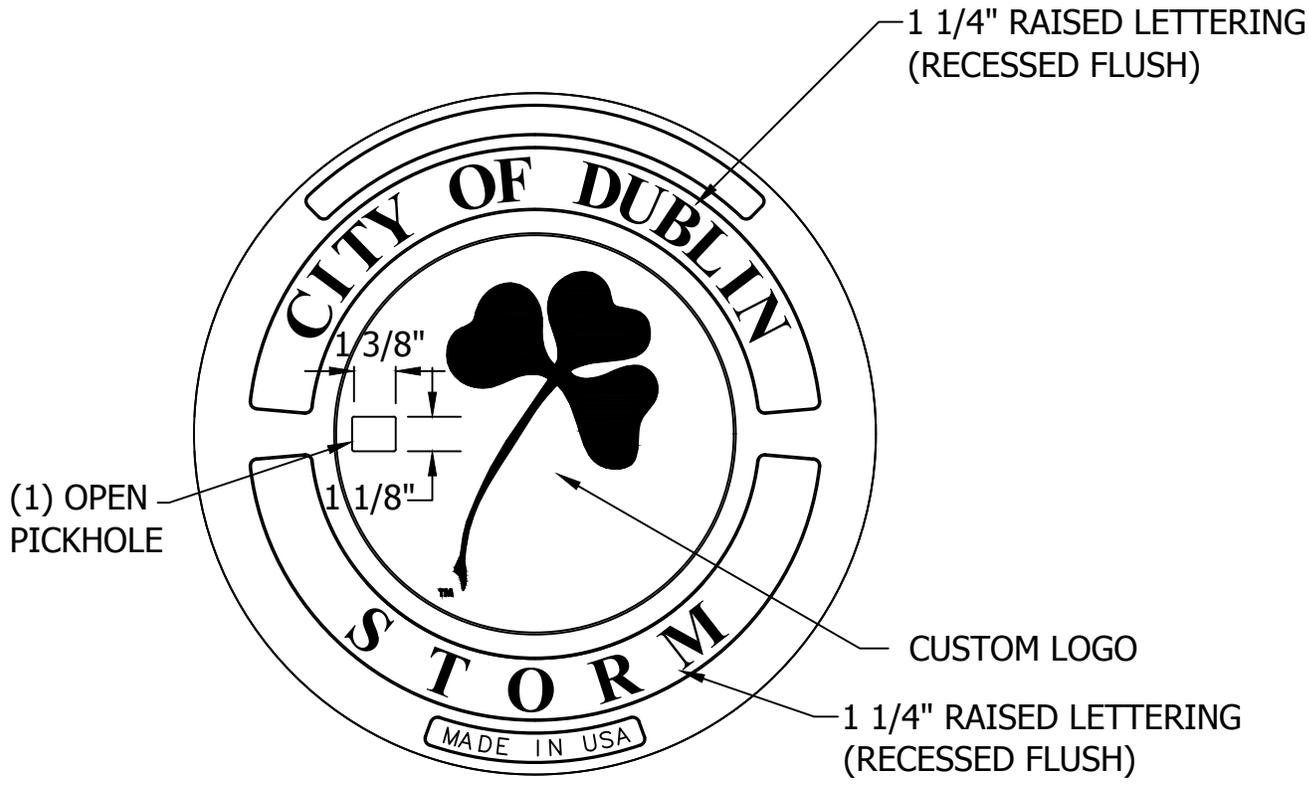
Sample	Cation Exchange Capacity: Actual % of Total CEC						Saturated Paste Extract Results				
	% K	% Mg	% Ca	% Na	% H	Total CEC	Bicarbonate ppm	Chloride ppm	Silicon ppm	SO ₄ ppm	Zinc ppm
1	1.9	19.2	62.6	0.3	16	12	22.6	11.4	60.7	8.2	0.1
	(3 - 7%)	(15 - 20%)	(65 - 75%)	(0 - 4%)	(0 - 5%)	(10 - 30)					

For full overview of all soil testing methods and their interpretation please click on this link for the [Profile Technical Document - Soil Testing and Interpretation](#)

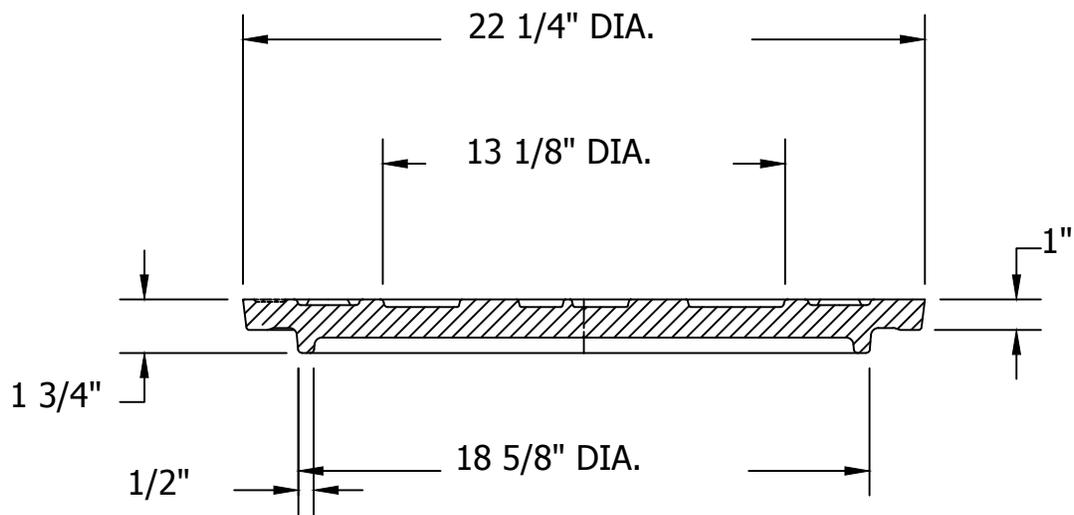
GENERAL FERTILIZATION GUIDANCE

- Fertilizer recommendations are based on annual requirements for turfgrass species. Application rates should be adjusted to account for annual application time, seasonality and vegetation that is being planted.
- Contact your seed supplier for specific recommendations that are applicable to your seed blend, area, and climate.
- Values shown above for Macro and Micro Nutrients should be reviewed by a local agronomist prior to making any general fertilization recommendations.

F. STANDARD DRAWINGS

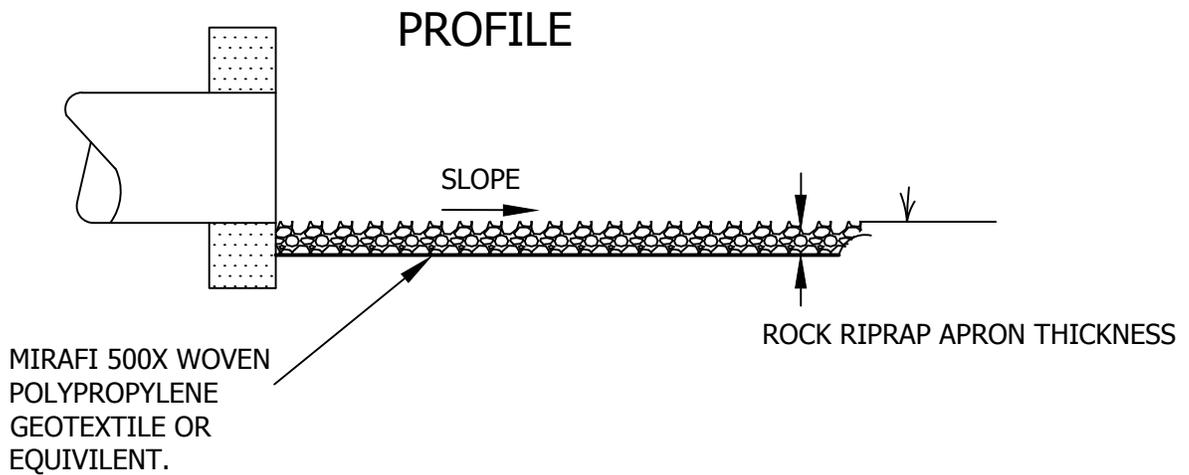
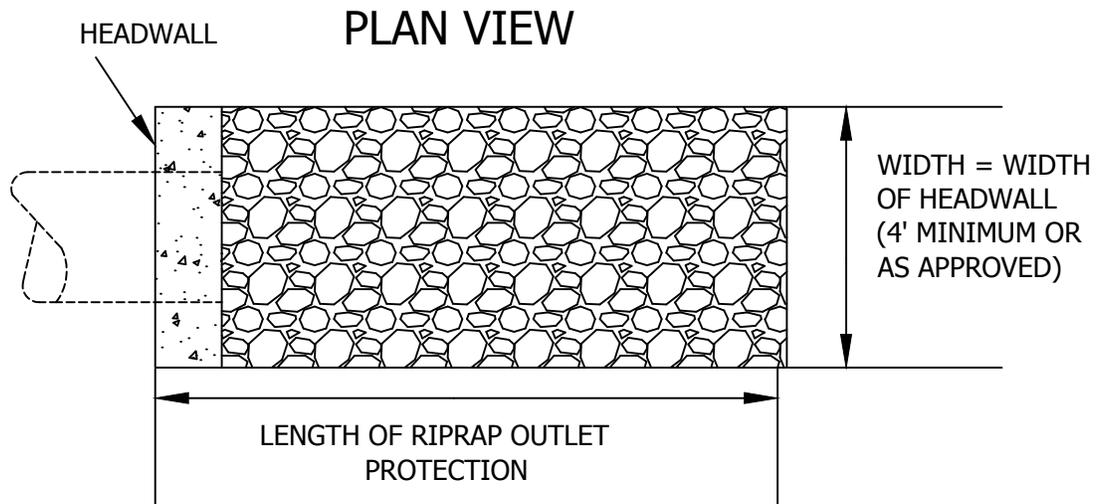


COVER FACE



COVER SECTION

Date: 01/01/2020



NOTES:

1. MINIMUM LENGTH TO BE 8 FEET, 5 FEET IF PIPE IS SUBMERGED.
2. MINIMUM THICKNESS OF 18 INCHES.
3. RIP-RAP SIZE TO BE DETERMINED BY OUTLET FLOW VELOCITY

Date: 01/01/2020

G. SCOPE OF WORK

THIS PROJECT PROVIDES FOR THE RELOCATION OF APPROXIMATELY 2,700 LINEAL FEET COSGRAY DITCH. THIS PROJECT IS LOCATED ON A 72 ARCE PARCEL OWNED BY THE CITY OF DUBLIN AT 6600 SHIER RINGS ROAD.

IV. OWNER COMPLETED FORMS

A. OWNER EXECUTION CHECKLIST

The following list highlights and serves as a reminder of actions required to execute the Contract with the selected bidder.

Notice of Award

- Complete the form once bidder selected
- Mail form to bidder
- Collect acceptance from bidder

Notice of Award to Surety and Surety's Agent

- Complete the form once bidder selected
- Send the bond to legal counsel for double-check of validity
- Send notice form to Surety and Agent at the addresses listed on the Bond form

Bid Tabulation Sheet

- If Prevailing Wage applies, ensure that the Bid Tabulation Sheet is completed and in your Project file

Prevailing Wage

- Check the date of the Determination Letter included with the Contract Documents. If it has expired, issue new prevailing wage rates to the Contractor.

Owner/Contractor Agreement

- Have the Contractor sign the Agreement
- Have the Law Director review and sign the Agreement
- Have the Fiscal officer sign the Agreement
- Have the CITY OF DUBLIN representative sign the Agreement

Notice of Commencement

- Complete the Notice of Commencement form and put it in the Project file
- Must produce it if requested but no filing requirement

Notice to Proceed

- Issue the Notice to Proceed

Bidder's and Subcontractors' Certificate(s) of Licensure

- If applicable, Collect from Bidder if not submitted with Bid

B. NOTICE OF AWARD TO BIDDER

Date: _____

PROJECT: COSGRAY DITCH - PHASE 1

The CITY OF DUBLIN (Owner) has considered the Bid submitted by you for the above-described work in response to the Legal Notice dated May 5, 2020 .

You are hereby notified that your Bid has been accepted for items in the amount of \$.

You are required by the Instructions to Bidders to execute the Contract and furnish the required documents within ten (10) calendar days from the date of this notice to you.

If you fail to execute said Contract within ten (10) days from the date of this notice, Owner may—at its discretion—exercise its rights with respect to your Bid guaranty and 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.

Dated this _____ day of _____, 2020.

Sincerely,

Paul A. Hammersmith P.E.
Director of Engineering / City Engineer

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged.

Bidder _____

This _____ day of _____, 2020

By: _____

Title: _____

C. NOTICE OF AWARD TO SURETY AND SURETY'S AGENT

(Surety)

(Address)

(City/State/Zip)

(Surety's Agent)

(Address)

(City/State/Zip)

Date: _____

SENT BY REGULAR U.S. MAIL

RE: NOTICE OF AWARD OF CONTRACT

To Whom It May Concern:

You are notified that your principal, _____, has been awarded a contract for the CITY OF DUBLIN, COSGRAY DITCH - PHASE 1, in the amount of \$ _____ by the CITY OF DUBLIN, OHIO .

Sincerely,

Paul A. Hammersmith P.E.
Director of Engineering / City Engineer

D. NOTICE TO PROCEED

To:

Date: _____

Project: **COSGRAY DITCH - PHASE 1**

Owner: CITY OF DUBLIN, OHIO
5555 Perimeter Drive , Dublin, Ohio 43017

You are hereby notified to commence Work in accordance with the City/Contractor Agreement dated , and you are to complete the Work in the time required by the Contract Documents. Within ten (10) days from this Notice to Proceed date, you will begin physical, on-site improvements. You are required to return an acknowledged copy of this Notice to Proceed, to the Owner, indicating Acceptance of this Notice to Proceed.

Paul A. Hammersmith P.E.
Director of Engineering / City Engineer

ACCEPTANCE OF NOTICE TO PROCEED

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by _____,
this the day of _____, 2020.

By: _____

Print Name: _____

Title: _____

E. NOTICE OF COMMENCEMENT OF PUBLIC IMPROVEMENT (O.R.C. §1311.252)

NOTICE IS HEREBY GIVEN OF THE COMMENCEMENT OF A PUBLIC IMPROVEMENT AS FOLLOWS:

1. The public improvement is identified as the CITY OF DUBLIN, COSGRAY DITCH - PHASE 1 project located at 6600 Shier Rings Road on a 72 arce parcel.
2. The public authority and Owner responsible for the public improvement is the CITY OF DUBLIN, OHIO, 5555 Perimeter Drive , Dublin, Ohio 43017 .
3. The principal contractor(s) for the public improvement are as follows:
 , .
4. The date the CITY OF DUBLIN first executed a contract with a principal contractor for this public improvement is .
5. The name and address of the representative for the CITY OF DUBLIN upon whom service may be made for the purposes of serving an affidavit pursuant to Section 1311.26 of the Ohio Revised Code is Paul A. Hammersmith P.E., Director of Engineering / City Engineer for the CITY OF DUBLIN, OHIO, 6555 Shier- Rings Road, Dublin, Ohio 43016.

Paul A. Hammersmith P.E.
Director of Engineering / City Engineer

Date

The foregoing instrument was acknowledged before me this _____, day of _____, 20____ by Paul A. Hammersmith P.E., Director of Engineering / City Engineer for the CITY OF DUBLIN, OHIO.

Signature and Seal of person taking acknowledgement:

V. ADDITIONAL PROJECT FORMS

A. PAYROLL INFORMATION

PROJECT: COSGRAY DITCH - PHASE 1

I, _____ (Name),
_____ (Title) of _____
(Company Name), state the following:

1. That I pay or supervise the payment of the persons employed by _____ (Company Name) on the above-referenced project.

2. That during the payroll period commencing on the _____ day of _____, 2020, and ending on the _____ day of _____, 2020, all persons employed on said project have been paid the full weekly wages earned; that no rebates have been or will be made either directly or indirectly to or on behalf of said _____ (Contractor/Subcontractor) from the full weekly wages earned by such persons; and that no deductions have been made either directly or indirectly from the full wages earned by such persons, other than permissible deductions as defined in Regulations, Part 3 (29 CFR Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. 276c), and described below:

3. That any payrolls otherwise under this Agreement for Construction (the "Agreement") required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates contained in the specifications as supplied by the Department of Industrial Relations or any wage determination incorporated into the Agreement; and that the classifications set forth therein for each laborer or mechanic conform with the work he performed.

4. That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with the Ohio Apprenticeship Council.

5. That (check applicable box):

a. WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS:

In addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above-referenced payroll, payments of fringe benefits listed in the Agreement have been or will be made to appropriate programs for the benefit of such employees, except as noted in Section 4 below.

□ b. WHERE FRINGE BENEFITS ARE PAID IN CASH:

Each laborer or mechanic listed in the above-referenced payroll has been paid as indicated on the payroll, and amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the Agreement, except as noted in Section 4 below.

c. Exceptions:

Exception (Craft):

Explanation:

_____	_____
_____	_____
_____	_____
_____	_____

Remarks:

(Signature)

(Print Name and Title)

The willful falsification of any of the above statements may subject the Contractor or Subcontractor to fines as described in Section 4115.99 of the O.R.C.

B. FINAL AFFIDAVIT OF COMPLIANCE WITH PREVAILING WAGES

PROJECT: **COSGRAY DITCH - PHASE 1**

STATE OF _____

COUNTY OF _____, SS:

I, _____, (Name of person signing the affidavit)
_____ (Title) do hereby certify that the wages paid to all employees of
_____ (Company Name) for all hours worked
on project the CITY OF DUBLIN COSGRAY DITCH - PHASE 1 located at 6600 Shier Rings Road
on a 72 arce parcel during the period from _____ to _____ are
in compliance with the Prevailing Wage requirements of Chapter 4115 of the Ohio Revised
Code. I further certify that no rebates or deductions have been or will be made, directly or
indirectly, from any wages paid in connection with this project, other than those provided by
law.

(Signature of Affiant)

(Print Name)

Sworn to and subscribed in my presence this _____ day of _____, 2020.

Notary Public

The above affidavit must be executed and sworn to by the officer or agent or the Contractor/Subcontractor who supervised the payment of employees, before the CITY OF DUBLIN, OHIO will release the surety and/or make final payment due under the terms of the Agreement.

C. CONTRACTOR’S LIEN WAIVER AND RELEASE AGREEMENT

Project: **COSGRAY DITCH - PHASE 1**

The undersigned hereby acknowledges receipt of payment from the City for all Work on the Project through the date of its prior Application for Payment. The undersigned acknowledges and agrees that the terms in this Agreement shall have the same meaning as in the Contract Documents for the Project.

In return for said payment, and/or pursuant to certain contractual obligations of the undersigned, the undersigned hereby waives and releases any rights it has or may have through the date of its last Application for Payment to any and all Claims and liens related to the Project, including without limitation: Claims of payment, mechanic’s liens, liens against funds, surety bond Claims, and Claims for breach of contract or unjust enrichment. The sole exception to this waiver and release is for any Claims the undersigned has made by properly and timely submitting a Claim as required by the Contract Documents. The undersigned acknowledges and agrees that this wavier and release is intended to be a comprehensive release of all Claims and liens related to the Project, including without limitation all Claims against the City, and the employees, board members, agents and representatives of any of the foregoing persons. The undersigned further certifies that this Agreement covers Claims and liens by all persons with which it did business related to the Project, including without limitation subcontractors and suppliers, through the date of its last Application for Payment. The undersigned represents that all such persons have signed an agreement in the form of this Agreement releasing any and all Claims and liens related to the Project, except for any Claims made by properly and timely submitting a Claim as required by the Contract Documents, a copy of which has been delivered to the City. The undersigned hereby represents and warrants that it has paid any and all welfare, pension, vacation, or other contributions required to be paid on account of the employment by the undersigned of any laborers on the Project.

This Agreement is for the benefit of, and may be relied upon by the City. The undersigned hereby agrees to indemnify, defend and hold harmless each of the foregoing, the Project, work or improvement, and real property from any and all Claims, or liens that are or should have been released in accordance with this Agreement.

Contractor Name: _____

Authorized Signature: _____

Title: _____

The foregoing instrument was acknowledged before me this _____, day of _____, 20____ by _____.

Signature and Seal of person taking acknowledgement:

VI. PLANS/DRAWINGS

Plans and Drawing are available at:

<https://dublinohiousa.gov/bids-and-requests-for-proposals//>