

City of Holland

Project Manual
for
40th Street Reconstruction Project

March 2026



City of Holland
333 Wyngarden Way
Holland, MI 49423
(616) 928-2400

In partnership with



Holland Board of Public Works
625 Hastings Avenue
Holland, MI 49423
(616) 355-1500



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- PART I BIDDING REQUIREMENTS, CONTRACT FORMS, AND CONTRACT CONDITIONS
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PART I

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- Permits included in Appendix D:
 EGLE Watermain Permit
 EGLE Sanitary Sewer Permit
 EGLE Joint Permit

**ADVERTISEMENT FOR BIDS
THE CITY OF HOLLAND
40TH STREET RECONSTRUCTION PROJECT**

The City of Holland is soliciting bids for the construction project referenced above. Please use the attached Bid Summary Form and submit your bid to the City of Holland, Transportation Services Department, 333 Wyngarden Way, Holland, Michigan, 49423, until **10:00 a.m.** local time on **Thursday, March 26, 2026**, at which time the bids will be opened and read publicly. Bids may be mailed or hand-delivered in a sealed envelope directed to Andrew Bisaha, PE at the Transportation Services Department, and endorsed on the outside of the envelope, "City of Holland 40th Street Reconstruction Project." The Contractor shall be responsible for verifying that their bid has been received by the City.

The project generally consists of the following work: 1.4 miles of road reconstruction including aggregate base, hot mix asphalt, concrete curb and gutter, sidewalk, sidewalk ramps, storm sewer, drainage structures, castings, water main, watermain lining, water services, sanitary sewer, sanitary laterals, casing pipe extensions, restoration, pedestrian signal upgrades, traffic control and pavement markings on 40th Street from Industrial Ave. to East City Limits.

Information and Bidding Documents for the Project will be available at the following websites by March 5, 2026:

- MITN website: www.bidnetdirect.com/mitn
- Grand Rapids Builders Exchange website: <https://home.grbx.com>
- Available by request at Spalding DeDecker from the contact below.
- City of Holland website: <https://www.cityofholland.com/Bids.aspx>

The Contractor shall be responsible for furnishing all labor, materials, tools, equipment, and services necessary to complete all the work related to the project. All materials and workmanship shall be provided in accordance with the 2020 Michigan Department of Transportation Standard Specifications for Construction unless otherwise specified. Bid documents consist of the attached maps and plans, general conditions, special provisions, invitation to bid, bid form, and referenced material. In order to bid on the project, contractors and subcontractors shall be prequalified with MDOT for the type of work being performed under this contract or have worked on similar projects within the past 5 years.

The City of Holland reserves the right to adjust the scope of the project and award the project based on available budget. Upon award by the Holland City Council, staff will notify the selected Contractor of the bid award and request the required bonds and insurance documents, prepare the contract agreement and schedule a pre-construction meeting to review the project. Upon receipt and approval of the bonds, insurance, and the executed contract agreement, city staff will issue a "Notice to Proceed" to the Contractor. Liquidated damages will be assessed at \$2,000/calendar day.

The City of Holland hereby reserves the right to reject any or all bids and to waive irregularities and informalities in any bid, or accept the bid that in its judgment will be in the best interest of the City of Holland. Collusion among contractors will be grounds for dismissal from this and all future construction projects with the City. In addition to MDOT prequalification, the City of Holland may perform reference checks on the Contractor to determine their ability to successfully perform the work. Results of the reference check may be grounds for disqualification of a contractor bid.

Questions regarding the project shall be directed to Bidder's inquiries shall be provided in writing and directed to: Chris Harrington, PE at Spalding DeDecker by email at charrington@sda-eng.com. Questions will not be accepted on the day of or the day before bid opening.

Brian White, P.E.
Transportation Services Director



INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents, or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Bidding Documents Website or Issuing Office. Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.
- 2.04 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf). It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.
- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in

Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 Bidder is to submit the following information upon request of the Owner prior to the Award to demonstrate Bidder's qualifications to perform the Work:
- A. Written evidence establishing its qualifications including, previous experience with reference contacts, and present commitments.
 - B. Subcontractor and Supplier qualification information.
- 3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

ARTICLE 4—PRE-BID CONFERENCE

- 4.01 A pre-bid conference will not be conducted for this Project.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

- 5.01 *Site and Other Areas*
- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.
- 5.02 *Existing Site Conditions*
- A. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.
- 5.03 *Site Visit and Testing by Bidders*
- A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas.
 - B. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for

preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.

- C. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Express Representations and Certifications in Bid Form, Agreement*

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:
 - A. Email to Chris Harrington (CHarrington@sda-eng.com) at Spalding DeDecker.
- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda and issued on the bidding document website. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of five percent (5%) of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required

Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.

- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.
- 9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND “OR EQUAL” ITEMS

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or “or-equal” items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or “or-equal” item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.
- 10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder's sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 11.02 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is

given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

- 11.03 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

ARTICLE 12—PREPARATION OF BID

- 12.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."
- 12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.
- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder's name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.

- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

13.01 *Unit Price*

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

13.02 *Allowances*

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

ARTICLE 14—SUBMITTAL OF BID

- 14.01 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.
- 14.02 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

- 15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 15.02 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 16—OPENING OF BIDS

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

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes

of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.

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

18.05 *Evaluation of Bids*

A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS AND INSURANCE

19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.

19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

BID FORM FOR CONSTRUCTION CONTRACT

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

ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: **City of Holland
Transportation Services Department
333 Wyngarden Way
Holland, MI 49423**
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security;
 - B. List of Proposed Subcontractors;
 - C. Required Bidder Qualification Statement with supporting data; and

ARTICLE 3—BASIS OF BID

- 3.01 *Unit Price Bids*
- A. Bidder will perform the following Work at the indicated unit prices:

Item No.	Ref. Spec.	Description	Quantity	Unit	Unit Price	Bid Amount
1	1047051	Audio-Visual Route Survey	LSUM	1		\$
2	1100001	Mobilization, Max 10%	LSUM	1		\$
3	2020004	Tree, Rem, 6 inch to 18 inch	Ea	7		\$
4	2030011	Dr Structure, Rem	Ea	15		\$
5	2030015	Sewer, Rem, Less than 24 inch	Ft	1680		\$
6	2037001	Sewer, Rem From Existing Casing, Less Than 24 Inch	Ft	110		\$
7	2037001	Water Main, DI CL52, 6 Inch, Tr Det G, Modified	Ft	180		\$
8	2037001	Water Main, DI CL52, 8 Inch, Tr Det G, Modified	Ft	240		\$
9	2037001	Water Main, DI CL52, 12 Inch, Tr Det G, Modified	Ft	3362		\$
10	2037001	Cured-In-Place Pipe Lining, 12 Inch	Ft	113		\$
11	2037001	Water Service, 1 Inch, Long	Ft	30		\$
12	2037001	Water Service, 1 Inch, Short	Ft	60		\$
13	2037001	Water Service, 2 Inch, Short	Ft	40		\$
14	2037001	Water Service, 2 Inch, Curb Box to Interior (Over 40 Ft)	Ft	200		\$
15	2037001	Water Main, Rem	Ft	340		\$
16	2037050	Water Main, 4 Inch, Cut and Cap	Ea	1		\$
17	2037050	Water Main, 8 Inch, Cut and Cap	Ea	4		\$
18	2037050	Water Main, 10 Inch, Cut and Cap	Ea	1		\$
19	2037050	Water Main, 12 Inch, Cut and Cap	Ea	12		\$
20	2037050	Sleeve, 8 inch	Ea	7		\$
21	2037050	Sleeve, 12 inch	Ea	2		\$
22	2037050	Bend, 45 Degree, 6 Inch	Ea	2		\$
23	2037050	Bend, 45 Degree, 8 Inch	Ea	14		\$
24	2037050	Bend, 45 Degree, 12 Inch	Ea	18		\$

Item No.	Ref. Spec.	Description	Quantity	Unit	Unit Price	Bid Amount
25	2037050	Reducer, 6 Inch by 4 Inch	Ea	1		\$
26	2037050	Reducer, 12 Inch by 10 Inch	Ea	1		\$
27	2037050	Gate Valve and Box, 6 Inch, Modified	Ea	9		\$
28	2037050	Gate Valve and Box, 8 Inch, Modified	Ea	7		\$
29	2037050	Gate Valve and Box, 12 Inch, Modified	Ea	12		\$
30	2037050	Tee, 12 Inch by 6 Inch	Ea	9		\$
31	2037050	Tee, 12 Inch by 8 Inch	Ea	7		\$
32	2037050	Tee, 12 Inch by 12 Inch	Ea	4		\$
33	2037050	Tee, 16 Inch by 12 Inch	Ea	1		\$
34	2037050	Fire Hydrant, Modified	Ea	8		\$
35	2037050	Utility Abandon	Ea	3300		\$
36	2037050	Water Service, Reconnect	Ea	6		\$
37	2037050	In Line Stop, 16 Inch	Ea	1		\$
38	2040020	Curb and Gutter, Rem	Ft	4130		\$
39	2040050	Pavt, Rem	Syd	95		\$
40	2040055	Sidewalk, Rem	Syd	1060		\$
41	2047050	Vertical Exploration	Ea	4		\$
42	2050031	Non Haz Contaminated Material Handling and Disposal, LM	Cyd	100		\$
43	2050041	Subgrade Undercutting, Type II	Cyd	8323		\$
44	2057002	Machine Grading, Modified	Sta	74		\$
45	2080020	Erosion Control, Inlet Protection, Fabric Drop	Ea	50		\$
46	2080036	Erosion Control, Silt Fence	Ft	200		\$
47	2087051	Tree Preservation	LSUM	1		\$
48	3010002	Subbase, CIP	Cyd	810		\$
49	3027011	Aggregate Base, 21AA, 5 inch, Modified	Syd	1770		\$
50	3027011	Aggregate Base, 21AA, 8 inch, Modified	Syd	31380		\$

Item No.	Ref. Spec.	Description	Quantity	Unit	Unit Price	Bid Amount
51	3060020	Maintenance Gravel	Ton	200		\$
52	3070128	Shld, Cl II, 6 inch	Syd	1670		\$
53	4010012	Culv End Sect, 12 inch	Ea	2		\$
54	4010024	Culv End Sect, 24 inch	Ea	1		\$
55	4017001	Steel Casing Pipe, 24 inch, Tr Det B	Ft	24		\$
56	4020987	Sewer, Cl IV, 12 inch, Tr Det B	Ft	640		\$
57	4020989	Sewer, Cl IV, 18 inch, Tr Det B	Ft	290		\$
58	4020993	Sewer, Cl IV, 24 inch, Tr Det B	Ft	653		\$
59	4021204	Sewer Tap, 12 inch	Ea	2		\$
60	4021275	Video Taping Sewer and Culv Pipe	Ft	100		\$
61	4030005	Dr Structure Cover, Adj, Case 1	Ea	34		\$
62	4030010	Dr Structure Cover, Type B	Ea	5		\$
63	4030040	Dr Structure Cover, Type G	Ea	9		\$
64	4030050	Dr Structure Cover, Type K	Ea	4		\$
65	4030200	Dr Structure, 24 inch dia	Ea	9		\$
66	4030210	Dr Structure, 48 inch dia	Ea	9		\$
67	4030312	Dr Structure, Tap, 12 inch	Ea	1		\$
68	4030390	Dr Structure, Temp Lowering	Ea	33		\$
69	4037001	Yard Drain	Ft	100		\$
70	4037050	Dr Structure Cover, Type B, Modified	Ea	21		\$
71	5010002	Cold Milling HMA Surface	Syd	880		\$
72	5010005	HMA Surface, Rem	Syd	31300		\$
73	5010025	Hand Patching	Ton	10		\$
74	5012025	HMA, 4EML	Ton	7890		\$
75	5012085	HMA, 5EML, High Stress	Ton	3950		\$
76	6037050	Concrete Washout Area	Ea	2		\$
77	7040002	Steel Sheet Piling, Temp	Sft	600		\$

Item No.	Ref. Spec.	Description	Quantity	Unit	Unit Price	Bid Amount
78	8010005	Driveway, Nonreinf Conc, 6 inch	Syd	2010		\$
79	8020016	Curb and Gutter, Conc, Det B2	Ft	100		\$
80	8020038	Curb and Gutter, Conc, Det F4	Ft	5170		\$
81	8020050	Driveway Opening, Conc, Det M	Ft	1350		\$
82	8027050	Spillway, Conc, Modified	Ea	3		\$
83	8030030	Curb Ramp Opening, Conc	Ft	130		\$
84	8030044	Sidewalk, Conc, 4 inch	Sft	37290		\$
85	8030046	Sidewalk, Conc, 6 inch	Sft	5960		\$
86	8032002	Curb Ramp, Conc, 6 inch	Sft	710		\$
87	8037001	Detectable Warning Surface, Modified	Ft	92		\$
88	8087001	Wood Fence	Ft	16		\$
89	8100396	Sign, Type II, Erect, Salv	Ea	3		\$
90	8102002	Sign, Type II, Rem, Salv	Ea	3		\$
91	8110091	Pavt Mrkg, Polyurea, 4 inch, White	Ft	14450		\$
92	8110092	Pavt Mrkg, Polyurea, 4 inch, Yellow	Ft	16320		\$
93	8110093	Pavt Mrkg, Polyurea, 6 inch, Crosswalk	Ft	560		\$
94	8110114	Pavt Mrkg, Polyurea, 24 inch, Stop Bar	Ft	260		\$
95	8110405	Pavt Mrkg, Polyurea, Lt Turn Arrow Sym	Ea	6		\$
96	8110411	Pavt Mrkg, Polyurea, Railroad Sym	Ea	2		\$
97	8110412	Pavt Mrkg, Polyurea, Rt Turn Arrow Sym	Ea	3		\$
98	8120012	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn	Ea	30		\$
99	8120013	Barricade, Type III, High Intensity, Double Sided, Lighted, Oper	Ea	30		\$
100	8120026	Pedestrian Type II Barricade, Temp	Ea	10		\$
101	8120170	Minor Traf Devices	LSUM	1		\$
102	8120245	Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, White, Temp	Ft	500		\$

Item No.	Ref. Spec.	Description	Quantity	Unit	Unit Price	Bid Amount
103	8120246	Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp	Ft	500		\$
104	8120252	Plastic Drum, Fluorescent, Furn	Ea	220		\$
105	8120253	Plastic Drum, Fluorescent, Oper	Ea	220		\$
106	8120310	Sign Cover	Ea	4		\$
107	8120332	Sign, Portable, Changeable Message, NTCIP-Compliant, Furn	Ea	2		\$
108	8120333	Sign, Portable, Changeable Message, NTCIP-Compliant, Oper	Ea	2		\$
109	8120350	Sign, Type B, Temp, Prismatic, Furn	Sft	520		\$
110	8120351	Sign, Type B, Temp, Prismatic, Oper	Sft	520		\$
111	8120352	Sign, Type B, Temp, Prismatic, Spec, Furn	Sft	32		\$
112	8120353	Sign, Type B, Temp, Prismatic, Spec, Oper	Sft	32		\$
113	8127060	Irrigation System Repair, Allowance	Dlr	20000		\$
114	8160027	Mulch Blanket	Syd	100		\$
115	8167011	Slope Restoration, Modified	Syd	9875		\$
116	8182000	Conduit, Rem	Ft	100		\$
117	8182046	Conduit, DB, 1, 1/2 inch	Ft	150		\$
118	8182310	Hh, Round	Ea	1		\$
119	8200100	Pedestal, Alum	Ea	2		\$
120	8200105	Pedestal, Fdn	Ea	2		\$
121	8200106	Pedestal Fdn, Rem	Ea	2		\$
122	8200110	Pedestal, Rem	Ea	2		\$
123	8200121	Pushbutton and Sign	Ea	3		\$
124	8200122	Pushbutton, Rem	Ea	3		\$
125	8200180	TS, Pedestrian, Bracket Arm Mtd, Rem	Ea	2		\$
126	8200181	TS, Pedestrian, Pedestal Mtd, Rem	Ea	2		\$

Item No.	Ref. Spec.	Description	Quantity	Unit	Unit Price	Bid Amount
127	8200339	TS, Pedestrian, Two Way Bracket Arm Mtd (LED) Countdown	Ea	2		\$
128	8200347	TS, Pedestrian, Two Way Pedestal Mtd (LED) Countdown	Ea	2		\$
129	8210001	Monument Box	Ea	3		\$
130	8210010	Monument Preservation	Ea	3		\$
131	8230091	Hydrant, Rem	Ea	6		\$
132	8230431	Gate Box, Adj, Case 1	Ea	7		\$
133	8257001	Sanitary Sewer, PVC, SDR-26, 8-inch, Tr Det B	Ft	65		\$
134	8257001	Sanitary Sewer, PVC, SDR-26, 10-inch, Tr Det B	Ft	590		\$
135	8257001	Sanitary Sewer, PVC, SDR-26, 12-inch, Tr Det B	Ft	1377		\$
136	8257001	Sanitary Sewer, PVC, SDR-26, 15-inch, Tr Det B	Ft	2570		\$
137	8257001	Sanitary Lateral. PVC, SDR-26, 6-inch, Tr Det B	Ft	480		\$
138	8257001	Sanitary Sewer, 15-inch, Installed in Existing Casing	Ft	84		\$
139	8257001	Sanitary Sewer, 15 Inch, Installed in New Casing	Ft	24		\$
140	8257050	Dr Structure, 48 inch Dia, Modified	Ea	20		\$
141	8257050	Wye, 12-inch by 6-inch	Ea	7		\$
142	8257050	Wye, 15-inch by 6-inch	Ea	8		\$
143	8257051	Televised Laterals Post-Construction (Sanitary)	LSUM	1		\$
144	8257051	Televised Laterals Pre-Construction (Sanitary)	LSUM	1		\$
145	8257051	Televised Sanitary Main Post-Construction (Sanitary)	LSUM	1		\$

Item No.	Ref. Spec.	Description	Quantity	Unit	Unit Price	Bid Amount
146	8257051	Televised Sanitary Main Pre-Construction (Sanitary)	LSUM	1		\$
Bid Total						\$

Planned Start Date: _____

Phasing Plan: _____

Substantial Completion Date: _____

Final Completion Date: _____

B. Bidder acknowledges that:

1. Each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
2. Estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—TIME OF COMPLETION

4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

The Contractor shall state on the bid form their planned start date, phasing plan, substantial completion date, and final completion dates for consideration with their bids.

Additional Schedule Constraints:

A. All work shall be coordinated around Tulip Time (May 6-14) to limit disruptions to traffic flow, and all lanes of 40th Street shall be open during Tulip Time.

B. Work phasing:

- Phase 1A: Work on 40th from Industrial Avenue to Waverly Road shall be completed under a road closure.
- Phase 1B: Work on 40th from Waverly Road to the East City Limit shall be completed under a road closure.
- Phase 2: 40th Street and Waverly Intersection will be completed under a 12 calendar day road closure, to be coordinated with the City.

Work shall not progress to the next phase unless active surface restoration is ongoing in the previous phase. Once work begins on the project, it shall be continuous until complete.

If the separate contract for sidewalk work is awarded, that work will occur concurrently with the phase limits that are described above.

4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5—BIDDER’S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 *Bid Acceptance Period*

A. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 *Instructions to Bidders*

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 *Receipt of Addenda*

A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder’s Representations*

- A. In submitting this Bid, Bidder represents the following:
1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
 2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
 6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical

Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.

7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits this Bid as set forth above:

Bidder:

_____ *(typed or printed name of organization)*

By: _____ *(individual's signature)*

Name: _____ *(typed or printed)*

Title: _____ *(typed or printed)*

Date: _____ *(typed or printed)*

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

Attest: _____ *(individual's signature)*

Name: _____ *(typed or printed)*

Title: _____ *(typed or printed)*

Date: _____ *(typed or printed)*

Address for giving notices:

Bidder's Contact:

Name: _____ *(typed or printed)*

Title: _____ *(typed or printed)*

Phone: _____

Email: _____

Address: _____

Bidder's Contractor License No.: (if applicable) _____

BID FORM FOR ALTERNATE CONTRACT SUPPLEMENTAL SIDEWALK

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

ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: **City of Holland
Transportation Services Department
333 Wyngarden Way
Holland, MI 49423**
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.
- 1.03 Items of work included in this separate construction contract are alternate bid items that the City may elect to award in addition to the main contract. If the supplemental contract is awarded, it is the City's intent to award both contracts to a single contractor.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security;
 - B. List of Proposed Subcontractors;
 - C. Required Bidder Qualification Statement with supporting data; and

ARTICLE 3—BASIS OF BID

- 3.01 *Unit Price Bids*
- A. Bidder will perform the following Work at the indicated unit prices:

Item No.	Ref. Spec.	Description	Quantity	Unit	Unit Price	Bid Amount
1	3010002	Subbase, CIP	27	Cyd		
2	8030044	Sidewalk, Conc, 4 inch	15815	Sft		
3	8030046	Sidewalk, Conc, 6 inch	3181	Sft		
4	8032002	Curb Ramp, Conc, 6 inch	193	Sft		
5	8030030	Curb Ramp Opening, Conc	16	Ft		
6	8037010	_Detectable Warning Surface, Modified	66	Ft		
Bid Total						\$

Complete Project Schedule with Additional Work in this Bid:

Planned Start Date: _____

Phasing Plan: _____

Substantial Completion Date: _____

Final Completion Date: _____

B. Bidder acknowledges that:

1. Each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
2. Estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—TIME OF COMPLETION

4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

The Contractor shall state on the bid form their planned start date, phasing plan, substantial completion date, and final completion dates for the project with the addition of this work for consideration with their bids.

Additional Schedule Constraints:

If this separate contract for sidewalk work is awarded, that work will occur concurrently with the phase limits that are described in the primary project scope.

4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5—BIDDER’S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 *Bid Acceptance Period*

- A. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 *Instructions to Bidders*

- A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 *Receipt of Addenda*

- A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder’s Representations*

- A. In submitting this Bid, Bidder represents the following:
 1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
 2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
 6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder’s (Contractor’s) safety precautions and programs.

7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

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

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

Address for giving notices:

Bidder's Contact:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Phone: _____

Email: _____

Address: _____

Bidder's Contractor License No.: (if applicable) _____

BID BOND

Bidder Name: Address:	Surety Name: Address:
Owner Name: City of Holland Address: City of Holland Transportation Services 333 Wyngarden Way, Holland, MI 49423	Bid Project: Bid Due Date:
Bond Bond Amount: Date of Bond:	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
_____ <i>(Full formal name of Bidder)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i>	

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder any difference between the total amount of Bidder's Bid and the total amount of the Bid of the next lowest, responsible Bidder that submitted a responsive Bid, as determined by Owner, for the work required by the Contract Documents, provided that:
 - 1.1. If there is no such next Bidder, and Owner does not abandon the Project, then Bidder and Surety shall pay to Owner the bond amount set forth on the face of this Bond, and
 - 1.2. In no event will Bidder's and Surety's obligation hereunder exceed the bond amount set forth on the face of this Bond.
 - 1.3. Recovery under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions will not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond must be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

NOTICE OF AWARD

Date of Issuance:

Owner: **CITY OF HOLLAND**

Project No.: **HO24001**

Engineer: Spalding DeDecker

Project: **40th STREET RECONSTRUCTION PROJECT**

Bidder:

Bidder's Address:

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

40th STREET RECONSTRUCTION PROJECT

The Contract Price of the awarded Contract is **\$(Contract Price)**. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

Five (5) unexecuted Agreements accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

Drawings will be delivered separately from the other Contract Documents.

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

1. Deliver to Owner Five (5) Agreements, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.

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

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: **CITY OF HOLLAND**

By (signature): _____

Name (printed): _____

Title: _____

Copy: Engineer

AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT

This Agreement is by and between the **THE CITY OF HOLLAND** (“Owner”) and _____ (“Contractor”).

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

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: **Full Road Reconstruct, Watermain, Sanitary and Storm Sewer installation.**

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **40th STREET RECONSTRUCTION PROJECT**

ARTICLE 3—ENGINEER

3.01 The Owner has retained Spalding DeDecker (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.

3.02 The part of the Project that pertains to the Work has been designed by Spalding DeDecker.

ARTICLE 4—CONTRACT TIMES

4.01 *Time is of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times:*

A. The Work will be substantially complete by October 31, 2026, as provided in Paragraph 4.01 of the General Conditions. The Work shall be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions by November 20, 2026.

B. Work on Phase 2 within the intersection of 40th and Waverly shall not exceed 12 calendar days without prior approval of the ENGINEER and OWNER. If work exceeds 12 calendar days, liquidated damages may be assessed as detailed below.

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also

recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. *Key Milestones*: Contractor shall pay Owner \$2,000.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for the key milestones noted in Section 4.02 above, until the Work in that Milestone is complete.
 2. *Substantial Completion*: Contractor shall pay Owner \$2,000.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
 3. *Completion of Remaining Work*: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$2,000.00 for each day that expires after such time until the Work is completed and ready for final payment.
 4. Liquidated damages for failing to timely attain key milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

4.04 *Progress Payments*

- A. The OWNER shall pay to the CONTRACTOR, as partial payment under this Contract, the value as estimated by the ENGINEER of the work done, less the aggregate of the previous payments, less that retainage permitted pursuant to Michigan Public Act 524 of 1980, as amended. Prior to the disbursement of any progress payment or final payment, the CONTRACTOR must provide the OWNER with waivers of lien and sworn statements as set forth in the General Conditions. The OWNER may reserve and retain out such partial payment a sum sufficient to meet any undischarged obligations of the CONTRACTOR for labor and materials incorporated in the work, or any other sums as provided for in the Contract Documents.

ARTICLE 5—CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:
- A. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).
 - B. The OWNER shall pay the CONTRACTOR for completion of the Work in accordance with the Contract Documents, in current funds at the unit prices stated in the CONTRACTOR's Bid.
 - C. The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions,

estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

ARTICLE 6—PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

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

6.03 *Final Payment*

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

6.04 *Consent of Surety*

- A. Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
 - 1. This Agreement.
 - 2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
 - 3. General Conditions.
 - 4. Supplementary Conditions.
 - 5. Specifications as listed in the table of contents of the project manual.
 - 7. Drawings listed on the attached sheet index.
 - 8. Addenda (numbers **[number]** to **[number]**, inclusive).
 - 10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
 - e. Warranty Bond, if any.

- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 Contractor's Representations

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 - 1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 - 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 - 5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
 - 6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
 - 7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
 - 8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.
This Agreement will be effective on _____ (which is the Effective Date of the Contract).

Owner:

Contractor:

(typed or printed name of organization)

(typed or printed name of organization)

By: _____
(individual's signature)

By: _____
(individual's signature)

Date: _____
(date signed)

Date: _____
(date signed)

Name: _____
(typed or printed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Title: _____
(typed or printed)
(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(individual's signature)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

Address for giving notices:

Address for giving notices:

Designated Representative:

Designated Representative:

Name: _____
(typed or printed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

Address:

Phone: _____

Phone: _____

Email: _____

Email: _____

License No.: _____
(where applicable)

State: _____

NOTICE TO PROCEED

Owner: The City of Holland Project No.: HO24001
Engineer: Spalding DeDecker
Contractor: _____
Project: _____
Contract Name: _____
Effective Date of Contract: _____

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on **[date Contract Times are to start]** pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

The number of days to achieve Substantial Completion is **[number of days, from Agreement]** from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of **[date, calculated from commencement date above]**; and the number of days to achieve readiness for final payment is **[number of days, from Agreement]** from the commencement date of the Contract Times, resulting in a date for readiness for final payment of **[date, calculated from commencement date above]**.

Before starting any Work at the Site, Contractor must comply with the following:

Owner: The City of Holland
By *(signature)*: _____
Name *(printed)*: _____
Title: _____
Date Issued: _____

PERFORMANCE BOND

Contractor Name: Address:	Surety Name: Address:
Owner Name: The City of Holland Mailing address: City of Holland Transportation Services 333 Wyngarden Way Holland, MI 49423	Contract Description: 40th Street Reconstruction Project Contract Price: Effective Date of Contract:
Bond Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
 - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

- 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
 - 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
 7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
 - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
 - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
 8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
 9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
 10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
 11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
 12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
 13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such

statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

16. Modifications to this Bond are as follows:

MAINTENANCE AND GUARANTEE BOND

<p>Contractor</p> <p>Name: _____</p> <p>Address <i>(principal place of business)</i>: _____</p>	<p>Surety</p> <p>Name: _____</p> <p>Address <i>(principal place of business)</i>: _____</p>
<p>Owner</p> <p>Name: The City of Holland</p> <p>Address <i>(principal place of business)</i>: _____</p> <p>City of Holland Transportation Services 333 Wyngarden Way Holland, MI 49423</p>	<p>Construction Contract</p> <p>Description <i>(name and location)</i>: 40th Street Reconstruction Project</p> <p>Contract Price: _____</p> <p>Effective Date of Contract: _____</p> <p>Contract's Date of Substantial Completion: _____</p>
<p>Bond</p> <p>Bond Amount: _____</p> <p>Date of Bond: _____</p> <p>Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 9</p>	
<p>Bond Period: Commencing 364 days after Substantial Completion of the Work under the Construction Contract, and continuing until two years after such Substantial Completion.</p>	
<p>Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth herein, do each cause this Maintenance and Guarantee Bond to be duly executed by an authorized officer, agent,</p>	
<p>Contractor as Principal</p>	<p>Surety</p>
<p>_____</p> <p style="text-align: center;"><i>(Full formal name of Contractor)</i></p>	<p>_____</p> <p style="text-align: center;"><i>(Full formal name of Surety) (corporate seal)</i></p>
<p>By: _____</p> <p style="text-align: center;"><i>(Signature)</i></p>	<p>By: _____</p> <p style="text-align: center;"><i>(Signature) (Attach Power of Attorney)</i></p>
<p>Name: _____</p> <p style="text-align: center;"><i>(Printed or typed)</i></p>	<p>Name: _____</p> <p style="text-align: center;"><i>(Printed or typed)</i></p>
<p>Title: _____</p>	<p>Title: _____</p>
<p>Attest: _____</p> <p style="text-align: center;"><i>(Signature)</i></p>	<p>Attest: _____</p> <p style="text-align: center;"><i>(Signature)</i></p>
<p>Name: _____</p> <p style="text-align: center;"><i>(Printed or typed)</i></p>	<p>Name: _____</p> <p style="text-align: center;"><i>(Printed or typed)</i></p>
<p>Title: _____</p>	<p>Title: _____</p>
<p><i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i></p>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract's Correction Period Obligations. The Construction Contract is incorporated herein by reference.
2. If the Contractor performs the Correction Period Obligations, the Surety and the Contractor shall have no obligation under this Maintenance and Guarantee Bond.
3. If Owner gives written notice to Contractor and Surety during the Bond Period of Contractor's obligation under the Correction Period Obligations, and Contractor does not fulfill such obligation, then Surety shall be responsible for fulfillment of such Correction Period Obligations. Surety shall either fulfill the Correction Period Obligations itself, through its agents or contractors, or, in the alternative, Surety may waive the right to fulfill the Correction Period Obligations itself, and reimburse the Owner for all resulting costs incurred by Owner in performing Contractor's Correction Period Obligations, including but not limited to correction, removal, replacement, and repair costs.
4. The Surety's liability is limited to the amount of this Maintenance and Guarantee Bond. Renewal or continuation of the Maintenance and Guarantee Bond will not modify such amount, unless expressly agreed to by Surety in writing.
5. The Surety shall have no liability under this Maintenance and Guarantee Bond for obligations of the Contractor that are unrelated to the Construction Contract. No right of action will accrue on this Maintenance and Guarantee Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
6. Any proceeding, legal or equitable, under this Maintenance and Guarantee Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and must be instituted within two years after the Surety refuses or fails to perform its obligations under this Maintenance and Guarantee Bond.
7. Written notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown in this Maintenance and Guarantee Bond.
8. Definitions
 - 8.1. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page of this Maintenance and Guarantee Bond, including all Contract Documents and changes made to the agreement and the Contract Documents.
 - 8.2. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
 - 8.3. *Correction Period Obligations*—The duties, responsibilities, commitments, and obligations of the Contractor with respect to correction or replacement of defective Work, as set forth in the Construction Contract's Correction Period clause, EJCDC® C-700, Standard General Conditions of the Construction Contract (2018), Paragraph 15.08, as duly modified.
 - 8.4. *Substantial Completion*—As defined in the Construction Contract.
 - 8.5. *Work*—As defined in the Construction Contract.

PAYMENT BOND

Contractor Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: City of Holland Mailing address <i>(principal place of business)</i> : City of Holland Transportation Services 333 Wyngarden Way Holland, MI 49423	Contract Description <i>(name and location)</i> : 40th Street Reconstruction Project Contract Price: Effective Date of Contract:
Bond Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 18	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
 - 5.1. Claimants who do not have a direct contract with the Contractor
 - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2. Pay or arrange for payment of any undisputed amounts.
 - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. Definitions
 - 16.1. *Claim*—A written statement by the Claimant including at a minimum:
 - 16.1.1. The name of the Claimant;
 - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
 - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 - 16.1.4. A brief description of the labor, materials, or equipment furnished;

- 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 - 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 - 16.1.7. The total amount of previous payments received by the Claimant; and
 - 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic’s lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of “labor, materials, or equipment” that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor’s subcontractors, and all other items for which a mechanic’s lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
- 16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
18. Modifications to this Bond are as follows:

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*
 - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

- requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.
- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
 - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
 - d. A demand for money or services by a third party is not a Claim.
11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
 12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
 13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
 14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
 15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
 16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
 17. *Cost of the Work*—See Paragraph 13.01 for definition.
 18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
 19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
 20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
 21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
46. *Technical Data*
- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
 - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
 - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:* The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:* The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:* The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
1. does not conform to the Contract Documents;
 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 3. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
 - 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
 - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

- A. *Standards Specifications, Codes, Laws and Regulations*
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. Abnormal weather conditions;
 - 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 - 4. Acts of war or terrorism.

- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.
- Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.
- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.
 - C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment

and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
3. Technical Data contained in such reports and drawings.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
 2. is of such a nature as to require a change in the Drawings or Specifications;
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
- a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;
 - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. *Underground Facilities; Hazardous Environmental Conditions:* Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
 - c. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
 4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures

- of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special

conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

Regulations, and must be issued and signed by a surety named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.
- H. Contractor shall require:
 - 1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
 - 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 Contractor's Insurance

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
 - 1. include at least the specific coverages required;
 - 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 - 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
 - 4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
 - 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds:* The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
 - 1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 - 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
 - 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and
5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
 2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

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

7.03 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *"Or Equals"*

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
- b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

- A. *Contractor's Request; Governing Criteria:* Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

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

7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.11 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

- 1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
- 2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.
1. *Shop Drawings*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.
 2. *Samples*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Engineer's Review of Shop Drawings and Samples*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will

document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

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

E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

- d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
 2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 Contractor's General Warranty and Guarantee

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
1. Observations by Engineer;
 2. Recommendation by Engineer or payment by Owner of any progress or final payment;
 3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. Use or occupancy of the Work or any part thereof by Owner;
 5. Any review and approval of a Shop Drawing or Sample submittal;
 6. The issuance of a notice of acceptability by Engineer;
 7. The end of the correction period established in Paragraph 15.08;
 8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;
 - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. An itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
 - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
 - 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

- 9.05 *Lands and Easements; Reports, Tests, and Drawings*
- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
 - B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
 - C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.
- 9.06 *Insurance*
- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.
- 9.07 *Change Orders*
- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.
- 9.08 *Inspections, Tests, and Approvals*
- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.
- 9.09 *Limitations on Owner's Responsibilities*
- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- 9.10 *Undisclosed Hazardous Environmental Condition*
- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.
- 9.11 *Evidence of Financial Arrangements*
- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).
- 9.12 *Safety Programs*
- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
 - B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER’S STATUS DURING CONSTRUCTION

10.01 *Owner’s Representative*

- A. Engineer will be Owner’s representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner’s representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor’s executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer’s efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer’s visits and observations are subject to all the limitations on Engineer’s authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer’s visits or observations of Contractor’s Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer’s consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer’s Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer’s authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer’s authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner’s delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer’s authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit will be determined as follows:
1. A mutually acceptable fixed fee; or
 2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
 - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
 - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
 - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
 - 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 - 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
 4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
 5. Other costs consisting of the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are

consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
- 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
- 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.

- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded*: The term Cost of the Work does not include any of the following items:
- 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
 - 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
 - 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 - 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 - 5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 - 6. Expenses incurred in preparing and advancing Claims.
 - 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee*
- 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
 - 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

- E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision

thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

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

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 3. by manufacturers of equipment furnished under the Contract Documents;
 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,

or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 Owner May Correct Defective Work

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

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

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments*
 - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
 - 2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. The Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. The Contract Price has been reduced by Change Orders;
 - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or
 - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 Contractor's Warranty of Title

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 Substantial Completion

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

- d. a list of all duly pending Change Proposals and Claims; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.
- C. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such adjacent areas;
 - 2. correct such defective Work;
 - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

- A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The

provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 2. agree with the other party to submit the dispute to another dispute resolution process; or
 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

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

18.09 *Successors and Assigns*

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

18.10 *Headings*

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

**SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT
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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

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

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, "Paragraph SC-4.05."

ARTICLE 2—PRELIMINARY MATTERS

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

Owner shall furnish to Contractor one printed copy of the Contract Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

SC-3.01 Delete Paragraph 3.01.C in its entirety.

ARTICLE 5—SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS

5.03 *Subsurface and Physical Conditions*

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

- E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

Report Title	Date of Report	Technical Data
Report of Geotechnical Investigation for 40 th Street Reconstruction	July 25, 2025	Soil Borings

The report is included in Appendix B of the Project Manual.

5.06 *Hazardous Environmental Conditions*

SC-5.06 Add the following new paragraphs immediately after Paragraph 5.06.A.3:

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Location	Date of Reports	Information
Facility ID 0016422: 636 E 40 th Street	2008-2019	This adjacent site is an EGLE documented site for PFAS contamination, and additional information is available at this link: Remediation Information and Data Exchange

ARTICLE 6— BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

SC-6.01 Add the following paragraphs immediately after Paragraph 6.01.B:

1. The warranty bond must be issued by the same surety that issues the performance bond required under Paragraph 6.01.A of the General Conditions.

6.03 *Contractor’s Insurance*

SC-6.03 Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:

- D. *Other Additional Insureds:* As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following: Holland Board of Public Works and CSX Railroad.
- E. *Workers’ Compensation and Employer’s Liability:* Contractor shall purchase and maintain workers’ compensation and employer’s liability insurance, including, as applicable.

Workers’ Compensation and Related Policies	Policy limits of not less than:
Workers’ Compensation	
State	Statutory
Employer’s Liability	
Each accident	\$500,000
Each employee	\$500,000
Policy limit	\$500,000

- F. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:
 1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor’s employees,
 2. damages insured by reasonably available personal injury liability coverage, and

3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- G. *Commercial General Liability—Form and Content:* Contractor’s commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage.
 - a. Such insurance must be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, including but not limited to coverage of Contractor’s contractual indemnity obligations in Paragraph 7.18.
 3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
 4. Underground, explosion, and collapse coverage.
 5. Personal injury coverage.
 6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
 7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 “Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured” or its equivalent.
- H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of “insured contract” (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
 2. Any exclusion for water intrusion or water damage.
 3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
 4. Any exclusion of coverage relating to earth subsidence or movement.
 5. Any exclusion for the insured’s vicarious liability, strict liability, or statutory liability (other than worker’s compensation).
 6. Any limitation or exclusion based on the nature of Contractor’s work.
 7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.

I. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability	Policy limits of not less than:
General Aggregate	\$2,000,000
Bodily Injury and Property Damage—Each Occurrence	\$1,000,000

J. *Automobile Liability:* Contractor shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

Automobile Liability	Policy limits of not less than:
Bodily Injury	
Each Person	\$1,000,000
Each Accident	\$1,000,000
Property Damage	
Each Accident	\$1,000,000

K. *Umbrella or Excess Liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer’s liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	\$5,000,000
General Aggregate	\$5,000,000

L. *Railroad Insurance:* Contractor shall purchase and maintain insurance that covers the CSX Railroad Requirements as detailed below, if not covered above.

CSX Insurance Requirements	Policy limits of not less than:
Commercial General Liability (Each Occurrence)	\$5,000,000
Railroad Protective Liability (Each Occurrence)	\$5,000,000
Railroad Protective Liability (Aggregate)	\$10,000,000

ARTICLE 7—ACTOR’S RESPONSIBILITIES

7.03 *Labor; Working Hours*

SC-7.03 Add the following new subparagraphs immediately after Paragraph 7.03.C:

1. Regular working hours will be 7am to 7 pm, Monday through Saturday.

2. Owner's legal holidays are New Year's Day, Martin Luther King Day, President's Day, Easter, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving, Christmas Eve, Christmas Day, New Year's Eve.

SC-7.03 Amend the first and second sentences of Paragraph 7.03.C to state "...all Work at the Site must be performed during regular working hours, Monday through Saturday. Contractor will not perform Work on a Sunday or any legal holiday without Owner approval."

SC-7.03 Add the following new paragraph immediately after Paragraph 7.03.C:

- D. Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES

17.02 Arbitration

SC-17.02 Add the following new paragraph immediately after Paragraph 17.01.

17.02 Arbitration

- A. All matters subject to final resolution under this Article will be settled by arbitration administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules (subject to the conditions and limitations of this Paragraph SC-17.02). Any controversy or claim in the amount of \$100,000 or less will be settled in accordance with the American Arbitration Association's supplemental rules for Fixed Time and Cost Construction Arbitration. This agreement to arbitrate will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitration administrator, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in Article 17, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event will any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations.
- C. The arbitrator(s) must be licensed engineers, contractors, attorneys, or construction managers. Hearings will take place pursuant to the standard procedures of the Construction Arbitration Rules that contemplate in-person hearings. The arbitrators will have no authority to award punitive or other damages not measured by the prevailing party's actual damages, except as may be required by statute or the Contract. Any award in an arbitration initiated

- under this clause will be limited to monetary damages and include no injunction or direction to any party other than the direction to pay a monetary amount.
- D. The Arbitrators will have the authority to allocate the costs of the arbitration process among the parties, but will only have the authority to allocate attorneys' fees if a specific Law or Regulation or this Contract permits them to do so.
 - E. The award of the arbitrators must be accompanied by a reasoned written opinion and a concise breakdown of the award. The written opinion will cite the Contract provisions deemed applicable and relied on in making the award.
 - F. The parties agree that failure or refusal of a party to pay its required share of the deposits for arbitrator compensation or administrative charges will constitute a waiver by that party to present evidence or cross-examine witness. In such event, the other party shall be required to present evidence and legal argument as the arbitrator(s) may require for the making of an award. Such waiver will not allow for a default judgment against the non-paying party in the absence of evidence presented as provided for above.
 - G. No arbitration arising out of or relating to the Contract will include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:
 - 1. the inclusion of such other individual or entity will allow complete relief to be afforded among those who are already parties to the arbitration;
 - 2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration, and which will arise in such proceedings;
 - 3. such other individual or entity is subject to arbitration under a contract with either Owner or Contractor, or consents to being joined in the arbitration; and
 - 4. the consolidation or joinder is in compliance with the arbitration administrator's procedural rules.
 - H. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
 - I. Except as may be required by Laws or Regulations, neither party nor an arbitrator may disclose the existence, content, or results of any arbitration hereunder without the prior written consent of both parties, with the exception of any disclosure required by Laws and Regulations or the Contract. To the extent any disclosure is allowed pursuant to the exception, the disclosure must be strictly and narrowly limited to maintain confidentiality to the extent possible.

1.01 Definitions

SC-1.01 Add to the list of definitions in Paragraph 1.01.A by inserting the following as numbered items in their proper alphabetical positions:

1. *Geotechnical Baseline Report (GBR)*—The interpretive report prepared by or for Owner regarding subsurface conditions at the Site, and containing specific baseline geotechnical conditions that may be anticipated or relied upon for bidding and contract administration purposes, subject to the controlling provisions of the Contract, including the GBR's own terms. The GBR is a Contract Document.
2. *Geotechnical Data Report (GDR)*—The factual report that collects and presents data regarding actual subsurface conditions at or adjacent to the Site, including Technical Data and other geotechnical data, prepared by or for Owner in support of the Geotechnical Baseline Report. The GDR's content may include logs of borings, trenches, and other site investigations, recorded measurements of subsurface water levels, the results of field and laboratory testing, and descriptions of the investigative and testing programs. The GDR does not include an interpretation of the data. If opinions, or interpretive or speculative non-factual comments or statements appear in a document that is labeled a GDR, such opinions, comments, or statements are not operative parts of the GDR and do not have contractual standing. Subject to that exception, the GDR is a Contract Document.

SECTION 01005 - PROJECT REQUIREMENTS

1.01 SUMMARY OF WORK

- A. The Work is a full road reconstruct of 40th Street from Industrial Avenue to East City limits, including Water Main, Sidewalk, Storm and Sanitary Sewer.
- B. The Work to be performed shall consist of furnishing tools, equipment, materials, supplies, and manufactured articles, and furnishing all labor, transportation, and services, including but not limited to fuel, power, water, essential communications, and performing all Work or other operations required in strict accordance with the Drawings and these specifications. The Work shall be complete, and all Work, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete and proper construction of the Work in good faith shall be provided by the Contractor as though originally so indicated, at no increase in cost to the Owner.
- C. Before mobilization, Contractor shall obtain, pay for, and provide copies of all additional permits required for the project. The City and BPW will provide copies of the following permits:
 - 1. EGLE Joint Permit (Included in Appendix D)
 - 2. Railroad Crossing Permits
 - 3. SESC Permit
 - 4. MDOT ROW Use Permit
 - 5. Allegan County ROW Use Permit
 - 6. EGLE Watermain Permit (Included in Appendix D)
 - 7. EGLE Sewer Permit (Included in Appendix D)

1.02 ALLOWANCES

No Allowances are planned for.

1.02 APPLICATIONS FOR PAYMENT

- A. Contractor's Application for Payment form to include the Bid Form noting which pay items are being applied for. All Applications for Payment must include this form.
- B. Before the submittal of the first Application for Payment, Contractor must provide the following:
 - 1. List of subcontractors (if applicable).
 - 2. List of materials.

1.03 PROJECT COORDINATION

- A. Contractor shall arrange all Work with the City and HBPW Project Representative so that at no time shall it cause unnecessary interruption to the operation of existing facilities.

CITY OF HOLLAND
SPECIAL PROVISION
FOR
40TH STREET RECONSTRUCTION

1 of 3

SDA:AJT

09/19/25

Setting Iron Castings & Adjustments - The contractor shall utilize a large diameter coring tool to neatly cut the pavement after the base course of HMA is placed in order to expose the top of the underlying infrastructure that require iron castings or covers such as manholes, valve boxes and monument boxes. The iron castings and covers shall be set in concrete to the base of the casting and cover. The top of the concrete shall be finished to a grade that is level with the bottom of the base course of asphalt. After the concrete has cured to the required compressive strength of 2,600 psi, HMA shall be placed and compacted over top of the concrete to a grade that level and even with the top of the base course of HMA. The tonnage of HMA required to perform this work will be paid for as "Hand Patching", however, all other work and associated cost required to set the iron castings and adjust shall be included in the pay items provided. Jack hammers, air hammers, excavator buckets, wedges, and other pneumatic equipment shall not be used to cut into the asphalt to adjust castings on the project.

Recycled Asphalt Pavement (RAP) - RAP content on this project shall comply with the Tier 1 category based on the Michigan Department of Transportation (MDOT) Special Provision for Recycled Hot Mix Asphalt Mixture on Local Agency Projects. Tier 2 and 3 RAP Content shall not be permitted on the project.

Echelon Paving - Multiple pavers that meet all the requirements of section 501 of the 2020 edition of the MDOT Standard Specifications for Construction shall be mobilized to the job site and work in tandem to complete construction of the top course of HMA (wearing Course). A "hot" construction joint is required where the echelon paving is specified. The distance between the two pavers must be no more than 300 feet. The screed of the rear paver will be set to match the grade or thickness of the unrolled edge of the first mat placed. No raking will be allowed to match thicknesses. The rollers compacting the mix behind the lead paver are to stay 6 inches away from the free edge of the mat on the side toward the second paver. Once the mix from the second paver is placed against the uncompacted edge of the mix from the first paver, the rollers compacting the second lane will be employed to compact the mix on both sides of the joint. No cold joints will be accepted with exception to the transition back to existing pavement and the joint between phases of construction. All other equipment necessary to complete the work, including multiple breakdown rollers and finish rollers, shall be utilized by the contractor. The contractor shall make arrangements to provide enough trucking so as to keep the two pavers moving down the grade at all times with minimal disruptions. Time gaps between loads shall not exceed 15 minutes provided the material temperature remains at or near 300°F immediately prior to placement. Additional costs to the contractor for this method of paving shall be included in the pay items provided and no additional payment shall be made to the contractor for this method of paving.

Trackless Tack - Trackless tack that meets the requirements of the attached special provision shall be used at all locations on the projects.

Debris and Tracking on Haul Routes - In no instance is the tracking of tack and/or HMA debris acceptable along haul routes for the project. The contractor shall be responsible for immediately cleaning up these areas.

2 OF 3

Removals - Removals shall be completed as marked in the field by the City's inspector in order to complete the work. At transition areas where new pavement will match into existing pavement, the existing pavement shall be double saw cut or saw cut once at the beginning of the construction phase and again immediately prior to paving. This work shall be considered included in the cost of associated bid items.

Saw Cutting - All existing HMA and concrete surfaces shall be sawcut at limits of the construction or as directed by the engineer and shall be included in the removal pay items. If the edge is damaged prior to the placement of a new surface, the edge shall be recut as directed by the engineer at no additional cost to the owner.

Existing storm sewers - Any existing storm sewers, not shown on the plans to be removed and replaced, which become disturbed during construction of the other proposed utilities shall be removed and replaced at the contractor's cost. Any broken or damaged sections shall be replaced with similar materials. Once replaced, the joints shall be wrapped with geotextile blanket per the City of Holland Specifications. Payment for removing and replacing storm sewer and any associated additional restoration shall not be made.

Sediment & Erosion Control Measures - The Contractor shall install erosion and sedimentation control measures in order to be in compliance with all applicable laws and ordinances. Payment for these items shall be considered included in the pay items provided on the bid form.

Restoration - The Contractor must take care not to damage existing lawns, sidewalks, pavement, driveways or curbs throughout the duration of the project. After the work has been completed, the Contractor shall restore the construction site back to original site conditions and make repairs to all areas damaged or impacted by the work. Prior to applying pavement markings and opening the road back up to traffic, the project area shall be swept clean. See Slope Restoration Special Provision for additional requirements.

Traffic Control - The Contractor shall be responsible for all traffic control, detour signage and maintenance of these items. These pay items shall be paid out with 50% of the bid amount at first use and the remaining balance at the end of the project. All traffic control must follow the plans sheets and the Maintaining Traffic Special Provision. If equipment or material is left on the project site, the Contractor shall be responsible for safely parking and securing the equipment. All traffic controls delineating the equipment shall be fitted with working orange construction lights set for steady burn if these devices are left in place during nighttime hours.

Excavation and Subbase Preparation - Unless otherwise directed by the engineer, the contractor shall utilize existing granular material for the subbase on the project, although it is anticipated that most existing subsoil will be fully hauled off and replaced to the bottom of aggregate base with utility construction. Prior to placement of the aggregate base, the contractor shall cut the existing grade to the bottom of the aggregate base layer and compact the underlying granular material to the density required for a granular subbase according to MDOT requirements. After density testing is completed with results that meet or exceed MDOT requirements, the contractor may proceed with placement of the aggregate base. Construction stakes shall be provided by the City's inspector that has markings for both the bottom of the aggregate base layer (top of existing subbase) and the top of aggregate base layer. All other requirements under this pay item shall match the pay item for Machine Grading, Modified.

3 OF 3

Soil Borings - Soil borings that were taken within and around the project limits, and these have been included for reference in Appendix B and are shown on the plans. Subgrade Undercutting, Type II- This pay item may be utilized at the discretion of the City Engineer. Work under this pay item shall be completed based on MDOT specifications.

Additional Special Provisions - The following additional special provisions are to be included in this section.

THE CITY OF HOLLAND BOARD OF PUBLIC WORKS (HBPW)

SPECIFICATION FOR- RESIDENT CLAIMS

HBPW: MJG

1 OF 2

05/09/2023

PART 1 - DESCRIPTION

1.1 SUMMARY

- A. Section includes requirements for handling and reporting claims of property damage from residents.

Active emergent concerns, such as active water leaks, are not covered here and are expected to be handled immediately by the Contractor.

PART 2 - DEFINITIONS

2.1 Definitions.

- A. Resident
Owner or tenant of a property affected by the project.
- B. Project Team
BPW Personnel and consultants administering the project.
- C. Contractor
Contractor performing the work as contracted by the BPW.
- D. Notify
Contractor will have to notify Project Team of timely completion. Notification may be via e-mail to the Project Team.

PART 3 - PROCESS

3.1 CLAIM ORIGINATION

- A. City Claims- Residents may file claims with the City Clerk, who will forward any claims to the Project team.
- B. Project Team- Residents may approach the Project Team with claims.
- C. Contractor – Residents may approach the Contractor with claims.

3.2 CLAIM RESPONSE

- A. Contractor is required to attempt contact with the resident within 24 hours of receiving notification of a claim, and notify the Project Team in writing of contact attempts. Contractor shall continue contact attempts every 24 hours until communication with the resident is established.

THE CITY OF HOLLAND BOARD OF PUBLIC WORKS (HBPW)

SPECIFICATION FOR- RESIDENT CLAIMS

HBPW: MJG

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05/09/2023

- B. Once communication is established, Contractor is to collect the following information defining the claim from the Resident and notify the Project Team with the communication from the Resident.
 - a. What property damage the Resident is concerned about.
 - b. When the damage is to have occurred.
 - c. Who owns the damaged property.
 - d. The dollar cost of the reported damage.

- C. Once the claim has been defined and the project team is notified. The Contractor has 5 business days to notify the project in writing with either a corrective plan or dispute for the claim.

PART 4 - COMPLIANCE

4.1 COMPLIANCE

- A. Failure to complete the steps in handling the claims in accordance with this specification will result in the claim being biased to the Resident. Additional retainage will be held in the amount of the dollar cost of the reported damage.

PART 5 - DOCUMENTATION

5.1 DOCUMENTATION

- A. Communications from the Contractor and Project Team will become part of the project records.

END OF SECTION

CITY OF HOLLAND

NOTICE TO BIDDERS

CONSTRUCTION COORDINATION CLAUSE

1 of 1

SD/LB

REV: 11/19/25

Description: In addition to the 40th Street Reconstruction Project, there are other projects located in the immediate area. Utility companies will be installing and upgrading utilities along this corridor. Contractor will be required to coordinate with the utility companies.

Cooperation by CONTRACTOR: City of Holland / Holland BPW maintenance crews and/or Contract Agencies may perform maintenance work within or adjacent to the Construction Influence Area (CIA).

This work will be coordinated with the Contractor through the ENGINEER for the local agency to minimize interference. No additional payment will be made to the Contractor for the joint use of traffic control items. The CONTRACTOR shall conduct the operations so as to interfere as little as possible with those of other CONTRACTORS, utilities, or any public authority on or near the work as shown on the plans or in the proposal. The OWNER reserves the right to perform other work by contract or otherwise, and to permit public utility companies and others to do work on or near the project during progress of the work. The CONTRACTOR shall conduct the work and shall cooperate with such other parties so as to cause as little interference as possible with their operations and as the ENGINEER may direct. No additional compensation will be paid to the CONTRACTOR for any reasonable delay or inconvenience due to material shortages or reasonable delays due to the operations of such other parties doing the work indicated or shown on the plans or in the proposal, or for any reasonable delays on construction due to the encountering of existing utilities that are shown on the plans.

CITY OF HOLLAND
NOTICE TO BIDDERS
FOR
WORK ON CSX RAILROAD PROPERTY

SDA:LEB

1 of 1

3/3/2026

The following information may be pertinent to the determination of construction methods and railroad protective insurance rates.

RAILROAD COMPANY

CSX Transportation
Brad Armstrong
CSX Project Manager — Public Projects
4802 Decoursey Pike
Taylor Mill, KY 41015

See below link for information on applying for Right of Entry Permit Application:
<https://www.csx.com/index.cfm/customers/value-added-services/property-real-estate/permitting-utility-wireless-infrastructure-installations-and-rights-of-entry/rights-of-entry-permits/>

CSX Transportation must be the named insured on the Railroad Protective Liability Insurance Policy. The named insured's address should be listed as:

CSX Transportation
500 Water Street
Jacksonville, FL 32202

Contractor must submit the complete Railroad Protective Liability policy. Certificates of insurance and all notices and correspondence regarding insurance policies in electronic format to:

insurancedocuments@csx.com

Neither Agency nor Contractor may begin work on or about CSX property until written approval of the required insurance has been received from CSX.

Train Moves

40th Street (NI#235612X)

There are approximately 4 freight train switching moves weekly; the maximum time table is 10 mph

CITY OF HOLLAND
PROJECT SPECIFICATION
FOR
UTILITY COORDINATION

SDA:LEB

1 of 2

11/19/2025

The Contractor shall cooperate and coordinate construction activities with the owner of utilities as stated in Section 104.08 of the MDOT 2020 Standard Specifications for Construction. In addition, for the protection of underground utilities, the contractor shall follow the requirements in Section 107.12 of the MDOT 2020 Standard Specifications for Construction. Contractor delay claims, resulting from a utility, will be determined based upon Section 109.05E of the MDOT 2020 Standard Specifications for Construction.

The following Utility Owners have facilities located within the right-of-way.

Gas:	SEMCO Energy, 712 Black River Dr, Holland, MI 49424 (616) 392-8060, Matt Wierenga
Electric:	Holland Board of Public Works, 625 Hastings Avenue, Holland, MI 49423 (616) 355-1621, Dan Kriege
Telephone:	AT&T, 245 E. 24 th Street, Holland, MI 49423 (810) 407-3521, Brad Dykens
Cable Television:	Comcast Cable Service, 3500 Patterson Ave SE, Grand Rapids, MI 49512 (231) 726-0862, Jason Brown
Fiber Optic:	Holland Board of Public Works, 625 Hastings Avenue, Holland, MI 49423 (616) 355-1555, Steve Root
Storm Sewer: Roads	City of Holland Transportation Services, 333 Wyngarden Way, Holland, MI 49423 (517) 899-1916, Andrew Bisaha
Sanitary Sewer: Water	Holland Board of Public Works, 625 Hastings Avenue, Holland, MI 49423 (616) 355-1621, Dan Kriege

The CONTRACTOR shall call "Miss Dig" a minimum of 3 working days prior to beginning construction operations. Saturday, Sundays and Holidays shall not be included as a working day. On all projects:

"3 Days before you Dig - Call Miss Dig - Toll Free" 811.

The owners of existing service facilities that are within grading or structure limits will move them to locations designated by the ENGINEER or will remove them entirely from the highway right-of-way. Owners of Public Utilities will not be required by the City to move additional poles or structures in order to facilitate the operation of construction equipment unless it is determined by the ENGINEER that

such poles or structures constitute a hazard to the public or are extraordinarily dangerous to the CONTRACTOR'S operations.

No additional compensation will be paid to the CONTRACTOR for delays due to material shortages or other reasons beyond the control of the City, or for delays on construction due to the encountering of existing utilities that are, or are not, shown on the plans.

Work stoppage by employees of utility companies which results in a delay of utility revisions on any portion of this project may be considered the basis for a claim for an extension of time for completion but will not be considered the basis for a claim for extra compensation or adjustment in contract unit prices.

Utility Coordination / Relocation Status:

Fiber optic duct bank upgrades are planned for 40th St. Conduits for the installation of the utilities will be installed during this project and Contractor will need to coordinate the work/scheduling of conduit install, transfer of wires, and installation of adjacent road work with the City, Holland BPW, and other third-party utility companies

CITY OF HOLLAND
SPECIAL PROVISION
FOR
TRAFFIC MAINTENANCE AND CONTROL

SDA/AJT

1 of 6

12/03/2025

- a. Description.** This work shall consist of work on East 40th Street from Industrial Ave to the East City limit in the City of Holland, Allegan County.
- b. General.** Traffic shall be maintained according to Sections 104.11 and 812 of the Michigan Department of Transportation *2020 Standard Specifications for Construction*, the Michigan Manual on Uniform Traffic Control Devices (MMUTCD), and any Supplemental Specifications, and as herein specified.
1. The Contractor shall notify the Engineer, a minimum of **3 calendar days** (excluding Saturday, Sundays and legal holidays), prior to the implementation of any detours, road closures, lane closures and major traffic shifts. Any delay in start time may result in delaying the project, until another start date can be agreed upon with the Engineer. Any delay on a new start date may not be reason for an extension of time.
 2. The Contractor shall coordinate his operations with Contractors performing work on other projects within or adjacent to the Construction Influence Area (CIA) as described below. The Contractor shall note Section 104.08 of the MDOT Standard Specifications for Construction for the requirement of cooperation with other contractors.
 3. County and/or Local maintenance crews and/or Contract Maintenance Agencies may perform maintenance work within or adjacent to the Construction Influence Area (CIA). The Contract Maintenance Agency will coordinate their operations with the Resident Engineer to minimize the interference to the Contractor. No additional payment will be made to the Contractor for the joint use of the traffic control items.
 4. During all times of construction, access to all business and residential drives for emergency vehicles, employees, customers and local residents shall be maintained by the Contractor until the project is completed, unless closure is approved by the Engineer. Access for tractor trailer vehicles shall be maintained as directed by the Engineer. This work will not be paid for separately but shall be included in payment for Minor Traf Devices.
 5. Contractor shall conduct operations such that excavations shall not be left overnight. At utility trenches across streets and drives, traffic shall be maintained using existing or salvaged materials. Payment is included in Minor Traffic Devices.
 6. Contractor shall attend a meeting, with the Engineer and City of Holland prior to mobilizing to the site to discuss the Contractor's plans for maintenance of traffic. The meeting will be set up by the Engineer once the preconstruction meeting has been held.

7. Any damage to adjacent residential streets, due to construction traffic, will be identified by the City of Holland or the Holland Board of Public Works. This damage will be repaired or replaced at the Contractor's expense.

c. Construction Influence Area (CIA). The CIA shall include the right-of-way of the following roadways, within the approximate limits described below:

1. East 40th Street from US-31 to 52nd Avenue
2. In addition, the CIA includes the right-of-way of any designated detour route or alternate route, intersecting roads and ramps adjacent to the work zone for a distance of approximately 1/4 mile in advance of the work zone or as far as the construction or detour signing extends.

d. Traffic Restrictions.

1. No work shall be performed during the Memorial Day, 4th of July and Labor Day holiday periods, as defined by the Engineer.
2. Tulip Time – No work shall be allowed to begin prior to Tulip Time (May 6 – May 14, 2026).
3. Work shall only be performed between the hours of 7am to 7 pm (Monday – Saturday). Work outside of these posted times will be at the discretion of the Engineer and any additional cost for maintaining traffic shall be borne by the Contractor.
4. No work shall be performed on Sunday, unless approved in writing by the Engineer or required per this Special Provision.
5. Contractor shall request permission to work no later than 12:00 pm the Wednesday prior to the weekend he is requesting to work.
6. Contractor shall maintain a minimum of one lane of traffic for access to residents and businesses.
7. The minimum lane width throughout the CIA shall be 10 feet.
8. The Contractor shall assist residents with getting garbage / recycling containers to the curb line or adjacent side street if access to roadway is unavailable.
9. Flag control shall be used for cross street traffic and driveways while crossing intersections with underground utilities and paving.
10. The arrow panel, signs, and channelizing taper for any flag control operation shall be placed at locations approved by the Engineer for adequate visibility to oncoming traffic.
11. The Contractor must submit a work zone traffic control plan to the Engineer. The Engineer will have seven (7) calendar days to review the plan for acceptance or provide comments for plan revisions required to obtain acceptance. At a minimum, the plan shall include the proposed ingress/egress locations for construction equipment and vehicles, traffic control devices that will be utilized to warn the motoring public of ingress/egress locations, and

measures that will be taken to ensure compliance with the plan. No work shall begin prior to acceptance of the work zone traffic control plan. Additional time required to obtain an accepted work zone traffic control plan shall not be cause for delay or impact claims. All costs associated with obtaining an acceptable plan, providing and executing all parts of the accepted plan including required traffic control devices, or resolving an incomplete or unacceptable plan shall be borne by the Contractor.

e. Stage Construction. The traffic control required by this Special Provision is based upon road closures and detours per the plans.

An alternate traffic control plan may be used by the contractor, subject to review and approval by the Engineer.

Contractor shall provide access to all properties within the Construction Zone for the duration of the project.

The anticipated Phases are listed below.

Phase 1A: East 40th Street from Industrial Ave to Waverly Rd

Phase 1A consists of the work on East 40th Street from Industrial Ave to Waverly Rd, excluding the intersection at East 40th St and Waverly Rd. This work will be done using a road closure with detour for through traffic.

1. The Contractor shall maintain a minimum of one lane of access to all businesses/parcels within the project limits
2. The Contractor shall coordinate the closure of driveways with all property owners for deliveries and access.
3. The Contractor shall maintain at least one pedestrian crossing at each intersection.

Phase 1B: East 40th Street from Waverly Rd to East City limit

Phase 1B consists of the work on East 40th Street from Waverly Rd to East City limit, excluding the intersection at East 40th St and Waverly Rd. This work will be done using a road closure with detour for through traffic.

1. The Contractor shall maintain a minimum of one lane of access to all businesses/parcels within the project limits
2. The Contractor shall coordinate the closure of driveways with all property owners for deliveries and access.
3. The Contractor shall maintain at least one pedestrian crossing at each intersection.

Phase 2: East 40th Street and Waverly Rd Intersection

Phase 2 will consist of the work on East 40th St and Waverly Rd intersection. This work will be done using a road closure with detour for through traffic.

1. The Contractor shall not begin Phase 2, until Phase 1A and Phase 1B base coarse has been placed.
2. The Contractor shall maintain a minimum of one lane of access to all businesses/parcels within the project limits
3. The Contractor shall coordinate the closure of driveways with all property owners for deliveries and access.
4. The Contractor shall maintain at least one pedestrian crossing at the intersection.
5. This closure is allowed for a maximum of one week.

f. Traffic Control Devices.

1. General

- A. All traffic control devices and their usage shall conform to the Michigan Manual of Uniform Traffic Control Devices (MMUTCD), current edition, and as specified herein.
- B. During non-working periods, any work site with uncompleted work shall have advance signs (W20-1 – “Road Work Ahead”) and Plastic Drums, at specific locations, as directed by the Engineer, at no additional cost to the City of Holland.
- C. During construction, access to all business and residential drives shall be maintained.
- D. Temporary warning, regulatory and guide signs not applicable to the current traffic operation or lane closure shall be removed, covered, or laid down with the legs removed as directed by the Project Engineer.
- E. All traffic control devices damaged by construction activities shall be replaced at the Contractor’s expense.
- F. The Contractor shall completely cover all conflicting warning, regulatory, and guide signs located within the CIA in accordance with the MDOT Standard Specifications for Construction, to be paid for as Sign Cover.

2. Temporary Signs

- A. Fabrication, installation, and removal of temporary signs shall be the responsibility of the Contractor and shall be included in the pay items for **Sign, Type __, Temp, Furn.**
- B. All diamond-shaped warning signs shall be 48in x 48in mounted at a 5-foot minimum bottom height in uncurbed areas, and 7-foot minimum bottom height in curbed or pedestrian areas.
- C. Distances shown between construction warning, regulatory and guide signs shown on the Michigan Department of Transportation Maintaining Traffic Typical 101-GEN-SPACING-CHARTS are approximate and may require field adjustment, as directed by the Engineer.
- D. All temporary signs shall be constructed with legends and symbols flush to the signs face and not extending beyond the sign borders or edges.
- E. All temporary signs that will be in place for more than fourteen (14) Days shall be mounted on ground driven sign supports per Michigan Department of Transportation Maintaining Traffic Typical WZD-100-A, unless approved by Engineer to leave on stands. The cost to maintain signs whether driven on posts or sandbagged will be included in payment for **Sign, Type __, Temp, Oper.**
- F. Any additional signs required for maintaining traffic shall be approved by the Engineer prior to placement and shall be paid for at the contract unit prices.

3. Permanent Signs

- A. All permanent signing shall be fabricated and placed according to the 2011 edition of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD), Standard Highway Signs Manual and sign support typicals, published by the Michigan Department of Transportation.
- B. All permanent signs shall be mounted at a 7 foot bottom height behind curbs and at a 6 foot bottom height in shoulder sections.
- C. Estimated quantities for new permanent signs required are provided in the plans. Permanent signs shall be installed at locations designated by the Engineer.
- D. All new permanent signs provided for this job shall be fabricated with High-Intensity Prismatic Reflective sheeting.

4. Channelizing Devices

- A. Channelizing devices required shall be **Plastic Drum, Fluorescent, Furn** and be in conformance with the Michigan Department of Transportation Maintaining Traffic Typical WZD-125-E.
- B. **200 Plastic Drum, Fluorescent, _** are included to be used at the discretion of the Engineer. Any additional channelizing devices needed for construction shall be approved by the Engineer prior to delivery and placement.
- C. Channelizing devices shall not be used to protect the Contractors operations and are only to be used for the delineation of traffic.
- D. Any traffic control devices such as drums, cones, barricades, fencing, etc. that is needed to protect the Contractors work or equipment shall be placed at the Contractors expense.

5. Portable Changeable Message Sign

- A. PCMS shall be furnished to the site 2 weeks prior to commencement of construction at a location agreed upon by the Engineer.
- B. Contractor shall verify message with Engineer and change as directed per current operations in a timely manner.
 - i. Acceptable Messages:
 - 1. Road Closure to Begin _-_-2026
 - 2. Construction to Begin _-_-2026
 - 3. 40th Street Closed
 - 4. Waverly Road Closed
 - 5. Follow Detour
 - 6. Expect Delays
- C. The quantity of plastic drums required for the message boards are already included in the quantity for **Plastic Drum, Fluorescent, Furn**.

6. Permanent Pavement Markings. All markings, shapes and dimensions shall conform to the MDOT pavement marking typical, unless specified otherwise by the plans or a Special Provision.

g. Measurement and Payment. The estimate of quantities for maintaining traffic on this project are based on the signing and related traffic control devices described in this Special Provision and payment for these devices shall be according to Section 812.04 of the MDOT *2020 Standard Specifications for Construction* unless otherwise specified. The quantities are based on maximum use and will not be paid separately for each phase.

CITY OF HOLLAND

SPECIAL PROVISION
FOR
HMA APPLICATION ESTIMATE

1 of 2

SDA:AJT

09/19/25

a. Description. Perform this work in accordance with the requirements of Division 5 of the MDOT 2020 Standard Specifications for Construction, except as herein specified.

b. Materials.

Mainline Roadway:

HMA, 5EML, HIGH STRESS (Top) shall have a yield of 220 lbs/syd. Aggregate Wear Index = 260 min. Asphalt performance grade shall be PG 70-28P.

HMA, 4EML (Leveling – 2nd course) shall have a yield of 220 lbs/syd. Asphalt performance grade shall be PG 64-28.

HMA, 4EML (Base – 1st course) shall have a yield of 220 lbs/syd. Asphalt performance grade shall be PG 64-28.

Approach:

HMA Approach mixes and application rates shall match mainline paving operations unless otherwise directed by the ENGINEER.

Hand Patching shall be HMA, 4EML and shall have a yield of 165 – 660 lbs/syd. Total depth shall match existing pavement section. HMA may need to be installed in multiple lifts to achieve desired thickness, with a minimum application rate of 165 lbs/syd. Asphalt performance grade shall be PG 64-28.

All HMA mixes shall be regressed to 3.5% air void content as noted in 20SP-501I-01.

Bond Coat shall be SS-1h Bond Coat applied at the rate of 0.05 to 0.15 gallons/SYD to be included in the respective HMA mixture items. Trackless Tack Coat shall be used (see Special Provision for Trackless Tack).

c. Construction Methods.

Cleaning existing pavement shall be included in the respective HMA mixture items.

HMA intersection approaches will not be a separate pay item for this project. All HMA on intersecting streets will be paid for under the mainline HMA bid items.

d. Measurement and Payment. Measurement and Payment will be at the contract unit price per ton. The CONTRACTOR shall be responsible for the control of the HMA application rates for this project. The pay quantity for HMA mixtures on this project shall not exceed more than 5% of the calculated quantities for each course based upon the above referenced yields and the actual areas paved. Quantities in excess of the above will not be considered for payment.

<u>Pay Item Pay</u>	<u>Unit</u>
HMA, 5EML, High Stress	Ton
HMA, 4EML	Ton
Hand Patching	Ton

CITY OF HOLLAND
SPECIAL PROVISION
FOR
MACHINE GRADING, MODIFIED
1 OF 2

SD/LEB

11/2025

- a. Description.** This work consists of all earthwork required to construct the proposed cross sections within the full depth construction limits shown on the plans, including the removal of subgrade material as called for on the plans and the preparation of the subgrade. This work shall also include removal of miscellaneous structures and materials. All work shall be completed in accordance with the Section 205 of the 2020 MDOT Standard Specifications for Construction and this special provision. This work shall also include grading of all ADA ramps and grading within easements within the project limits.
- b. Materials.** Additional material required to achieve the typical cross sections shall meet the requirements of MDOT Granular Material, CL II.
- c. Construction.** As required to achieve proposed cross sections, **Machine Grading, Modified** includes, but is not limited to, the following work.
- Removing miscellaneous structures and materials.
 - Removing trees less than 6 inch in diameter.
 - Removing rocks or boulders less than 0.5 cyd in volume.
 - Removing landscaping items within the R.O.W., including plants, edging, landscaping blocks, and other miscellaneous landscaping items.
 - Sawing existing pavement.
 - Topsoil stripping.
 - Relocation of mailboxes as needed.
 - Grading to place aggregate base.
 - Grading within the right-of-way and grading easements.
 - Excavating and disposing of excess or unsuitable material.
 - Furnishing, placing, and compacting any embankment needed to achieve plan cross section in the right of way including areas adjacent to the curb and under the sidewalk.
 - Final grading to plan alignment and grades.
 - Maintaining driveway access.
 - Maintaining a lane for emergency and local traffic along and parallel to the street.
 - Temporarily holding utility poles as needed for construction of roadway and underground utilities.

d. **Measurement and Payment.** The completed work as measured will be paid for at the contract unit price for the following contract items (pay items).

Contract Item (Pay Item)	Pay Unit
Machine Grading, Modified	Station

Machine Grading, Modified will be measured along the road centerline alignments in stations. **Machine Grading, Modified** includes work on both sides of the roadway and at driveways and intersections. The price shall include all labor, equipment, and materials required to complete the work as described. Pavement removal, subgrade undercutting and other items specifically excluded in this special provision will be paid for separately.

MICHIGAN DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
FOR
WORK NEAR RAILROAD CROSSING

12TM100(A305)

RAL:DGT

1 of 1

APPR:CRB:JG:06-25-15

a. Description. This work consists of the Contractor consulting with the representative of the CSX Transportation Inc. (herein after called the Railroad) to determine the necessity for, the type of, and cost of protection required for ensuring the safety and continuity of Railroad traffic and payment to the Railroad for protective services when doing work on, above, or below the Railroad property.

b. Materials. None specified.

c. Construction. Contact the Railroad 30 calendar days prior to starting work in the vicinity of their tracks. Provide documentation to the Engineer with the details of the contact, including the person contacted, phone number or email used, and the specific time and date. Ensure construction methods are in compliance with the requirements in the contract and as directed by the Engineer.

Pay (or pre-pay when required by the Railroad) the cost for railroad flagging, railroad watch person, right of entry permit, training, and other protective services and devices furnished or required by the Railroad and made necessary in the judgement of the representative of the Railroad because of the Contractor's operations which are within 25 feet of each side of centerline of track or impacted by traffic control operations. All Railroad bills for such protection costs must be paid within 14 days if not prepaid.

Monitor and provide immediate preference to clearing any traffic which backs up over the crossing as a result of flag control away from the crossing.

d. Measurement and Payment. Review the accuracy of costs from the Railroad and resolve any inconsistencies prior to submitting to Engineer for reimbursement. Submit satisfactory evidence or certification to the Engineer indicating all bills for protective services and devices furnished by the Railroad have been paid.

The Department will reimburse the Contractor for the costs incurred that have satisfactory evidence of payment to the Railroad using the following pay item.

Railroad Protection, at Grade CrossingDollar

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
NON-HAZARDOUS CONTAMINATED MATERIAL HANDLING AND DISPOSAL

ENV:JCW

1 of 2

APPR:DMG:DBP:02-26-20
FHWA:APPR:03-02-20

a. Description. This work consists of handling, transporting, disposing of non-hazardous contaminated material, including all laboratory testing required for the proper disposal of the material and site restoration of temporary storage locations. Ensure this special provision is not employed without authorization by the Engineer. The laboratory testing will be used to solicit landfill approval and is not intended to determine whether or not the material is contaminated. Soil delineated on the plans and classified as non-hazardous contaminated cannot be used elsewhere on the project regardless of the laboratory test results unless otherwise directed by the Engineer.

b. Materials. None specified.

c. Construction. Complete this work in accordance with sections 204 and 205 of the Standard Specifications for Construction, except as modified herein or as directed by the Engineer.

1. Excavation of Non-hazardous Contaminated Material. Excavate non-hazardous contaminated material as shown on the plans or as directed by the Engineer.

2. Temporary Storage of Non-hazardous Contaminated Material. Place excavated non-hazardous contaminated material which is to be temporarily stockpiled on plastic sheeting or tarps having a minimum thickness of 6 mils or in trucks, roll off boxes, or other containers, such that no liquid may escape from the containment. Cover the non-hazardous contaminated material securely with plastic sheeting of 6 mils thickness or greater at the end of each work day.

Dispose of excavated non-hazardous contaminated material as soon as approval is received from the disposal site. This material cannot be stockpiled for longer than 30 days prior to disposal.

Restore temporary storage locations to the condition prior to conducting the work.

3. Sampling and Analysis of Non-hazardous Contaminated Material. Sample and analyze non-hazardous contaminated material prior to disposal. The analysis required is dictated by the Type II disposal facility to be utilized for disposal. Should the results of the analysis show the material to be hazardous waste, as defined by the 1994 PA 451, Part 111, of the Natural Resources and Environmental Protection Act, notify the Engineer immediately. The material must then be disposed of as directed by the Engineer.

4. Disposal of Non-hazardous Contaminated Material. Dispose of non-hazardous contaminated material at a licensed Type II sanitary landfill. Submit at the preconstruction

meeting the name of the Type II landfill to be used for disposal, the sampling and analysis requirements of that landfill, and verification that use of the proposed landfill will meet the requirements of the county solid waste plan.

Ensure the proposed landfill is acceptable to the Department and approval is obtained from the Engineer prior to commencing disposal operations. Provide a copy of the laboratory analysis to the Engineer as a requirement of approval for disposal. Following disposal and prior to approval for payment provide to the Engineer landfill receipts for all non-hazardous contaminated material disposed of.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Non Haz Contaminated Material Handling and Disposal, LM.....	Cubic Yard

Non Haz Contaminated Material Handling and Disposal, LM will be measured by volume in cubic yards, LM. Provide to the Engineer receipts from the disposal facility for the number of cubic yards disposed of at that facility prior to payment. Payment will include all costs for materials, labor and equipment needed for storage, loading, transportation, testing, restoration of temporary storage locations and disposal of the non-hazardous contaminated material. Disposal costs will include all documentation required by the landfill.

Payment for excavation of non-hazardous contaminated material will be included with the related items of work.

Delays in testing and disposal of non-hazardous contaminated material that are not the fault of the Contractor may be considered valid reasons for extension of time. However, these delays and the resultant extensions of time will not be considered valid reasons for additional payment.

Should the analysis of the material document that it is hazardous waste, then payment for disposal of hazardous waste will be measured and paid for as extra work. Disposal includes hauling by a licensed hazardous waste hauler and disposal at an appropriate licensed disposal facility. Prequalification is waived.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SAMPLING ASPHALT BINDER ON LOCAL AGENCY PROJECTS

CFS:TRC

1 of 1

APPR:JWB:KPK:02-19-20
FHWA:APPR:02-19-20

a. Description. This work consists of the Contractor taking samples of the asphalt binder and delivering the samples to the Engineer prior to incorporation into the hot mix asphalt mixture.

b. Materials. For informational purposes, original samples of asphalt binder will be taken by the Contractor and delivered to the Engineer prior to incorporation into the mixture. The frequency of sampling will be determined by the Engineer.

The Contractor must certify in writing that the materials used in the HMA mixture are from the same source as the materials used in developing the HMA mixture design and the bond coat is from an approved supplier as stated in the *Material Quality Assurance Procedures Manual*.

c. Construction. None specified.

d. Measurement and Payment. The cost of obtaining and delivering the samples to the Engineer will be included in the hot mix asphalt (HMA) pay items in the contract.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
ACCEPTANCE OF HOT MIX ASPHALT MIXTURE ON LOCAL AGENCY PROJECTS

CFS:KPK

1 of 7

APPR:CJB:JWB:02-26-20
FHWA:APPR:03-13-20

a. Description. This special provision provides sampling and testing requirements for local agency projects using the roller method and the nuclear density gauge testing. Provide the hot mix asphalt (HMA) mixture in accordance with the requirements of the standard specifications, except where modified herein.

b. Materials. Provide aggregates, mineral filler (if required), and asphalt binder to produce a mixture proportioned within the master gradation limits shown in the contract, and meeting the uniformity tolerance limits in Table 1.

Table 1: Uniformity Tolerance Limits for HMA Mixtures

Parameter		Top and Leveling Course		Base Course		
Number	Description	Range 1 (a)	Range 2	Range 1 (a)	Range 2	
1	% Binder Content	-0.30 to +0.40	±0.50	-0.30 to +0.40	±0.50	
2	% Passing	# 8 and Larger Sieves	±5.0	±8.0	±7.0	±9.0
		# 30 Sieve	±4.0	±6.0	±6.0	±9.0
		# 200 Sieve	±1.0	±2.0	±2.0	±3.0
3	Crushed Particle Content (b)	Below 10%	Below 15%	Below 10%	Below 15%	
a. This range allows for normal mixture and testing variations. The mixture must be proportioned to test as closely as possible to the Job-Mix-Formula (JMF).						
b. Deviation from JMF.						

Parameter number 2 as shown in Table 1 is aggregate gradation. Each sieve will be evaluated on one of the three gradation tolerance categories. If more than one sieve is exceeding Range 1 or Range 2 tolerances, only the one with the largest exceedance will be counted as the gradation parameter.

The master gradation should be maintained throughout production; however, price adjustments will be based on Table 1. Aggregates which are to be used in plant-mixed HMA mixtures must not contain topsoil, clay, or loam.

c. Construction. Submit a Mix Design and a JMF to the Engineer. Do not begin production and placement of the HMA until receipt of the Engineer's approval of the JMF. Maintain the binder content, aggregate gradation, and the crushed particle content of the HMA mixture within the Range 1 uniformity tolerance limits in Table 1. For mixtures meeting the definition of top or leveling course, field regress air void content to 3.5 percent with liquid asphalt cement unless specified otherwise on HMA application estimate. For mixtures meeting the definition of base course, field regress air void content to 3.0 percent with liquid asphalt cement unless specified

otherwise on HMA application estimate.

Ensure all persons performing Quality Control (QC) and Quality Assurance (QA) HMA field sampling are "Local Agency HMA Sampling Qualified" samplers. At the pre-production or preconstruction meeting, the Engineer will determine the method of sampling to be used. Ensure all sampling is done in accordance with *MTM 313 (Sampling HMA Paving Mixtures)* or *MTM 324 (Sampling HMA Paving Mixtures Behind the Paver)*. Samples are to be taken from separate hauling loads.

For production/mainline type paving, obtain a minimum of two samples, each being 20,000 grams, each day of production, for each mix type. The Engineer will sample and maintain possession of the sample. Sampling from the paver hopper is prohibited. Each sample will be divided into two 10,000 gram parts with one part being for initial testing and the other part being held for possible dispute resolution testing. Obtain a minimum of three samples for each mix type regardless of the number of days of production.

Obtain samples that are representative of the day's paving. Sample collection is to be spaced throughout the planned tonnage. One sample will be obtained in the first half of the tonnage and the second sample will be obtained in the second half of the tonnage. If planned paving is reduced or suspended, when paving resumes, the remaining sampling must be representative of the original intended sampling timing.

Ensure all persons performing testing are Bit Level One certified or Bit QA/QC Technician certified.

Ensure daily test samples are obtained, except, if the first test results show that the HMA mixture is in specification, the Engineer has the option of not testing additional samples from that day.

At the pre-production or preconstruction meeting, the Engineer and Contractor will collectively determine the test method for measuring asphalt content (AC) using *MTM 319 (Determination of Asphalt Content from Asphalt Paving Mixtures by the Ignition Method)* or *MTM 325 (Quantitative Extraction of Bitumen from HMA Paving Mixtures)*. Back calculation will not be allowed for determining asphalt content.

Ensure all labs performing local agency acceptance testing are qualified labs per the *HMA Production Manual and the Michigan Quality Assurance Procedures Manual*, and participate in the MDOT round robin process, or they must be *AASHTO Materials Reference Laboratory (AMRL)* accredited for *AASHTO T30* or *T27*, and *AASHTO T164* or *T308*. Ensure on non-National Highway System (NHS) routes, Contractor labs are made available, and may be used, but they must be qualified labs as previously stated. Contractor labs may not be used on NHS routes. Material acceptance testing will be completed by the Engineer within 14 calendar days, except holidays and Sundays, for projects with less than 5,000 tons (plan quantity) of HMA and within 7 calendar days, except holidays and Sundays, for projects with 5,000 tons (plan quantity) or more of HMA, after the Engineer has obtained the samples. QA test results will be provided to the Contractor after the Engineer receives the QC test results. Failure on the part of the Engineer or the laboratory to provide QA test results within the specified time frame does not relieve the Contractor of their responsibility to provide an asphalt mix within specifications.

The correlation procedure for ignition oven will be established as follows. Asphalt binder content based on ignition method from *MTM 319*. Gradation (*ASTM D5444*) and Crushed particle content (*MTM 117*) based on aggregate from *MTM 319*. The incineration temperature will be established

at the pre-production meeting. The Contractor will provide a laboratory mixture sample to the acceptance laboratory to establish the correction factor for each mix. Ensure this sample is provided to the Engineer a minimum of 14 calendar days prior to production.

For production/mainline type paving, the mixture may be accepted by visual inspection up to a quantity of 500 tons per mixture type, per project (not per day). For non-production type paving defined as driveways, approaches, and patching, visual inspection may be allowed regardless of the tonnage.

The mixture will be considered out-of-specification, as determined by the acceptance tests, if for any one mixture, two consecutive tests per parameter, (for Parameter 2, two consecutive aggregate gradations on one sieve) are outside Range 1 or Range 2 tolerance limits. If a parameter is outside of Range 1 tolerance limits and the second consecutive test shows that the parameter is outside of Range 2, then it will be considered to be a Range 1 out-of-specification. Consecutive refers to the production order and not necessarily the testing order. Out-of-specification mixtures are subject to a price adjustment per the Measurement and Payment section of this special provision.

Contractor operations will be suspended when the mixture is determined to be out-of-specification, but contract time will continue to run. The Engineer may issue a Notice of Non-Compliance with Contract Requirements (Form 1165), if the Contractor has not suspended operations and taken corrective action. Submit a revised JMF or proposed alterations to the plant and/or materials to achieve the JMF to the Engineer. Effects on the Aggregate Wear Index (AWI) and mix design properties will be taken into consideration. Production and placement cannot resume until receipt of the Engineer's approval to proceed.

Pavement in-place density will be measured using one of two approved methods. The method used for measuring in-place density will be agreed upon at a pre-production or preconstruction meeting.

Pavement in-place density tests will be completed by the Engineer during paving operations and prior to traffic staging changes. Pavement in-place density acceptance testing will be completed by the Engineer prior to paving of subsequent lifts and being open to traffic.

Option 1 - Direct Density Method

Use of a nuclear density gauge requires measuring the pavement density using the Gmm from the JMF for the density control target. The required in-place density of the HMA mixture must be 92.0 to 98.0 percent of the density control target. Nuclear density testing and frequency will be in accordance with the *MDOT Density Testing and Inspection Manual*.

Option 2 - Roller Method

The Engineer may use the Roller Method with a nuclear or non-nuclear density gauge to document achieving optimal density as discussed below.

Use of the density gauge requires establishing a rolling pattern that will achieve the required in-place density. The Engineer will measure pavement density with a density gauge using the Gmm from the JMF for the density control target.

Use of the Roller Method requires developing and establishing density frequency curves, and

meeting the requirements of Table 2. A density frequency curve is defined as the measurement and documentation of each pass of the finished roller until the in-place density results indicate a decrease in value. The previous recording will be deemed the optimal density. The Contractor is responsible for establishing and documenting an initial or QC rolling pattern that achieves the optimal in-place density. When the density frequency curve is used, the Engineer will run and document the density frequency curve for each half day of production to determine the number of passes to achieve the maximum density. Table 5, located at the end of this special provision, can be used as an aid in developing the density frequency curve. The Engineer will perform density tests using an approved nuclear or non-nuclear gauge per the manufacturer's recommended procedures.

Table 2: Minimum Number of Rollers Recommended Based on Placement Rate

Average Laydown Rate, Square Yards per Hour	Number of Rollers Required (a)	
	Compaction	Finish
Less than 600	1	1 (b)
601 - 1200	1	1
1201 - 2400	2	1
2401 - 3600	3	1
3601 and More	4	1

a. Number of rollers may increase based on density frequency curve.
b. The compaction roller may be used as the finish roller also.

After placement, roll the HMA mixture as soon after placement as the roller is able to bear without undue displacement or cracking. Start rolling longitudinally at the sides of the lanes and proceed toward the center of the pavement, overlapping on successive trips by at least half the width of the drum. Ensure each required roller is 8 tons minimum in weight unless otherwise approved by the Engineer.

Ensure the initial breakdown roller is capable of vibratory compaction and is a maximum of 500 feet behind the paving operations. The maximum allowable speed of each roller is 3 miles per hour (mph) or 4.5 feet per second. Ensure all compaction rollers complete a minimum of two complete rolling cycles prior to the mat temperature cooling to 180 degrees Fahrenheit (F). Continue finish rolling until all roller marks are eliminated and no further compaction is possible. The Engineer will verify and document that the roller pattern has been adhered to. The Engineer can stop production when the roller pattern is not adhered to.

d. Measurement and Payment. The completed work, as described, will be measured and paid for using applicable pay items as described in subsection 501.04 of the Standard Specifications for Construction, or the contract, except as modified below.

Base Price. Price established by the Department to be used in calculating incentives and adjustments to pay items and shown in the contract.

If acceptance tests, as described in section c. of this special provision, show that a Table 1 mixture parameter exceeds the Range 1, but not the Range 2, tolerance limits, that mixture parameter will be subject to a 10 percent penalty. The 10 percent penalty will be assessed based on the acceptance tests only unless the Contractor requests that the 10,000 gram sample part retained for possible dispute resolution testing be tested. The Contractor has 4 calendar days from receipt

of the acceptance test results to notify the Engineer, in writing, that dispute resolution testing is requested. The Contractor's QC test results for the corresponding QA test results must result in an overall payment greater than QA test results otherwise the QA tests will not be allowed to be disputed. The Engineer has 4 calendar days to send the dispute resolution sample to the lab once dispute resolution testing is requested. The dispute resolution sample will be sent to an independent lab selected by the Local Agency, and the resultant dispute test results will be used to determine the penalty per parameter, if any. Ensure the independent lab is a MDOT QA/QC qualified lab or an AMRL HMA qualified lab. The independent lab must not have conflicts of interest with the Contractor or Local Agency. If the dispute testing results show that the mixture parameter is out-of-specification, the Contractor will pay for the cost of the dispute resolution testing and the contract base price for the material will be adjusted, based on all test result parameters from the dispute tests, as shown in Table 3 and Table 4. If the dispute test results do not confirm the mixture parameter is out-of-specification, then the Local Agency will pay for the cost of the dispute resolution testing and no price adjustment is required.

If acceptance tests, as described in section c. of this special provision, show that a Table 1 mixture parameter exceeds the Range 2 tolerance limits, the 10,000 gram sample part retained for possible dispute resolution testing will be sent, within 4 calendar days, to the MDOT Central Laboratory for further testing. The MDOT Central Laboratory's test results will be used to determine the penalty per mixture parameter, if any. If the MDOT Central Laboratory's results do not confirm the mixture parameter is out-of-specification, then no price adjustment is required. If the MDOT Central Laboratory's results show that the mixture is out-of-specification and the Engineer approves leaving the out-of-specification mixture in place, the contract base price for the material will be adjusted, based on all parameters, as shown in Table 3 and Table 4.

In the case that the Contractor disputes the results of the test of the second sample obtained for a particular day of production, the test turn-around time frames given would apply to the second test and there would be no time frame on the first test.

The laboratory (MDOT Central Laboratory or independent lab) will complete all Dispute Resolution testing and return test results to the Engineer, who will provide them to the Contractor, within 13 calendar days upon receiving the Dispute Resolution samples.

In all cases, when penalties are assessed, the penalty applies to each parameter, up to two parameters, that is out of specification.

Table 3: Penalty Per Parameter

Mixture Parameter out-of-Specification per Acceptance Tests	Mixture Parameter out-of-Specification per Dispute Resolution Test Lab	Price Adjustment per Parameter
No	N/A	None
Yes	No	None
	Yes	Outside Range 1 but not Range 2: decrease by 10% Outside Range 2: decrease by 25%

The quantity of material receiving a price adjustment is defined as the material produced from the time the first out-of-specification sample was taken until the time the sample leading to the first in-specification test was taken.

Each parameter of Table 1 is evaluated with the total price adjustment applied to the contract base price based on a sum of the two parameter penalties resulting in the highest total price adjustment as per Table 4. For example, if three parameters are out-of-specification, with two parameters outside Range 1 of Table 1 tolerance limits, but within Range 2 of Table 1 limits and one parameter outside of Range 2 of Table 1 tolerance limits and the Engineer approves leaving the mixture in place, the total price adjustment for that quantity of material is 35 percent.

Table 4: Calculating Total Price Adjustment

Cost Adjustment as a Sum of the Two Highest Parameter Penalties		
Number of Parameters Out-of-Specification	Range(s) Outside of Tolerance Limits of Table 1 per Parameter	Total Price Adjustment
One	Range 1	10%
	Range 2	25%
Two	Range 1 and Range 1	20%
	Range 1 and Range 2	35%
	Range 2 and Range 2	50%
Three	Range 1, Range 1 and Range 1	20%
	Range 1, Range 1 and Range 2	35%
	Range 1, Range 2 and Range 2	50%
	Range 2, Range 2 and Range 2	50%

Table 5: Density Frequency Curve Development

Tested by: _____ Date/Time: _____

Route/Location:		Air Temp:
Control Section/Job Number:		Weather:
Mix Type:	Tonnage:	Gauge:
Producer:	Depth:	Gmm:

Roller #1 Type:

Pass No.	Density	Temperature	Comments
1			
2			
3			
4			
5			
6			
7			
8			
Optimum			

Roller #2 Type:

Pass No.	Density	Temperature	Comments
1			
2			
3			
4			
5			
6			
7			
8			
Optimum			

Roller #3 Type:

Pass No.	Density	Temperature	Comments
1			
2			
3			
4			
5			
6			
7			
8			
Optimum			

Summary: _____

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
RECYCLED HOT MIX ASPHALT MIXTURE ON LOCAL AGENCY PROJECTS

CFS:KPK

1 of 2

APPR:JWB:CJB:02-26-20
FHWA:APPR:03-02-20

Add the following subsection to subsection 501.02.A.2 of the Standard Specifications for Construction.

- c. **Reclaimed Asphalt Pavement (RAP) and Binder Grade Selection.** The method for determining the binder grade in HMA mixtures incorporating RAP is divided into three categories designated Tier 1, Tier 2 and Tier 3. Each tier has a range of percentages that represent the contribution of the RAP binder toward the total binder, by weight. The tiers identified below apply to HMA mixtures with the following exception: Superpave mixture types EML, EML High Stress, EMH, EMH High Stress, and EH, EH High Stress used as leveling or top course must be limited to a maximum of 27 percent RAP binder by weight of the total binder in the mixture.

Recycled materials may be used as a substitute for a portion of the new materials required to produce HMA mixtures in accordance with contract.

- **Tier 1 (0% to 17% RAP binder by weight of the total binder in the mixture).** No binder grade adjustment is made to compensate for the stiffness of the asphalt binder in RAP.
- **Tier 2 (18% to 27% RAP binder by weight of the total binder in the mixture).** For all mixtures no binder grade change will occur in Tier 2 for all shoulder and temporary road mixtures.

Ensure the required asphalt binder grade is at least one grade lower for the low temperature than the design binder grade required for the specified project mixture type. Lowering the high temperature of the binder one grade is optional. For example, if the design binder grade for the mixture type is PG 58-22, the required grade for the binder in the HMA mixture containing RAP would be a PG 52-28 or a PG 58-28.

For Marshall Mixes, no binder grade change will be required when Average Daily Traffic (ADT) is above 7000 or Commercial Average Daily Traffic (CADT) is above 700. No binder grade change will occur for EL mixtures used as leveling or top course.

The asphalt binder grade can also be selected using a blending chart for high and low temperatures. Supply the blending chart and the RAP test data used in determining the binder selection according to *AASHTO M323*.

- **Tier 3 ($\geq 28\%$ RAP binder by weight of the total binder in the mixture).** The binder grade for the asphalt binder is selected using a blending chart for high and low temperatures per *AASHTO M323*. Supply the blending chart and the RAP test data

used in determining the binder selection.

CITY OF HOLLAND

SPECIAL PROVISION
FOR
ECHELON PAVING

CITY OF HOLLAND/LEB

1 of 1

11/19/25

Description: This work consists of constructing a longitudinal construction joint by echelon paving where designated on the plans. All work must be done in accordance with the standard specifications, except as modified here within all these special provisions, including what is specified below.

Materials: None specified.

Construction: The longitudinal construction joint must be formed by multiple pavers operating in echelon. The distance between the multiple pavers must be no more than 300 feet. The screed of the rear paver will be set to match the grade or thickness of the unrolled edge of the first mat placed. No raking will be allowed to match thicknesses. The rollers compacting the mix behind the lead paver is to stay 6 inches away from the free edge of the mat on the side toward the second paver. Once the mix from the second paver is placed against the uncompacted edge of the mix from the first paver, the rollers compacting the second lane will be employed to compact the mix on both sides of the joint. At the end of the day the paved mat from the two pavers must end at the same point.

Measurement and Payment: Separate payment will not be made for echelon paving. The cost of this work will be included in the prices bid for other items of work.

CITY OF HOLLAND

SPECIAL PROVISION
FOR
TRACKLESS TACK

CITY OF HOLLAND
WIGHTMAN/AJN

1 of 1

01/15/2021
REV: 02/10/2022

Description: The work shall conform to the requirements of Section 501.03 of the 2020 Standard Specifications for Construction of the Michigan Department of Transportation (MDOT) with the following modifications:

1. Contractor shall utilize a bond coat that does not track off the construction site.
2. Contractor shall utilize one of the approved Low Tracking Bond Coat Products:
 - a. LTBC-2 Trackless Tack by K-Tech Specialty Coatings, Inc.
 - b. LTBC-2 Trackless Tack by Specialty Emulsions, Inc.
 - c. LTBC-2 Trackless Tack by Bit-Mat Products
 - d. Or submit an alternative product for review and approval by the city engineer.
3. Contractor shall provide material certifications and proof of delivery for the trackless tack product prior to the start of construction.

Measurement and Payment: The complete work as measured for Trackless Tack will not be paid for separately but shall be included in the contract unit price for the HMA pay items and include all necessary labor, materials and equipment required to complete this item.

CITY OF HOLLAND
SPECIAL PROVISION
FOR
AUDIO VIDEO ROUTE SURVEY

CITY OF HOLLAND/BJW
WIGHTMAN/AJN
CITY OF HOLLAND/ALB

1 of 2

05/2010
REV: 02/10/2022
REV: 03/18/2024

Description: Provide an audio-video record of physical, structural and aesthetic conditions of the construction zone of influence as it exists prior to the beginning of any construction activities. The video must be professional quality, providing a clear and accurate visual record of existing conditions.

Complete filming before any construction activity is started. Furnish the completed video to the Engineer one week prior to placement of any materials or equipment in the construction area. Any portion of the video determined by the Engineer to be unacceptable for the documentation of existing conditions must be recorded again prior to the start of any construction activity. All costs associated with rework shall be borne by the Contractor.

Video Taping: Provide the name of the videotaping services company to the Engineer a minimum of 5 work days prior to the start of taping.

The Contractor shall furnish to the Owner and the Engineer a color audio-video Digital Video Disc (DVD) of the construction site for the purpose of establishing a record of existing conditions prior to construction. The audio-video DVD shall be of a professional quality that will clearly log an accurate visual description of existing conditions and be indexed by number and street.

Tapes are not acceptable. Other video formats may be used at the discretion of the Engineer.

To preclude the possibility of tampering or editing, all video recordings must, by electronic means; display continuously and simultaneously generated transparent digital information to include the date and time of recordings as well as the corresponding engineering stationing numbers. The date information shall include the month, day, and year and shall be placed directly below the time information. The time information shall consist of hours, minutes, and seconds. This transparent information shall appear on the extreme upper left-hand third of the screen. The engineering stationing must be continuous, accurate, and correspond to the Project stationing. This transparent information must appear in the lower half of the viewing screen. Below the stationing, periodic information will appear. This information will consist of the name of the Project, name of the area covered, direction of travel, viewing side, etc.

Taped coverage shall include all surface features located within the zone of influence of construction and shall be supported by appropriate audio description. Audio description shall be made simultaneously with the video coverage. Such coverage shall include, but not be limited to, all existing driveways, sidewalks, curbs, ditches, roadways, landscaping, trees, culverts, headwalls, retaining walls, buildings (located on both sides of the right-of-way or easement within such zone of influence), and any haul routes designated by the Engineer. Homes and buildings shall be identified visually by street and number when visible.

When conventional wheeled vehicles can be used, the distance from the camera lens to the ground shall not be less than 12 feet to insure proper perspective. Where conventional wheeled vehicles cannot be used, the camera coverage shall be obtained by walking or by special conveyance to secure the required result. The rate of speed of the conveyance used during taping shall be 30 feet per minute. Panning rates and zoom-in/zoom-out rates shall be controlled sufficiently to ensure clarity of the object viewed.

All recording shall be done during times of good visibility or with the use of sufficient artificial lighting. No recording shall be done during periods of visible precipitation, or when more than 10 percent of the ground area is covered with snow. All recording shall be done within a two (2) week period prior to the placement of materials on the site.

A record of the contents of the media shall be supplied by a sheet identifying each segment in the recording by location, viewing side, starting point, traveling direction, and ending point.

Measurement and Payment: The completed work as documented by the video(s) will be paid for at the contract unit price for the following contract item.

Pay Item	Unit
Audio Video Route Survey.....	Lump Sum

Payment for the item **Audio Video Route Survey** includes all labor, equipment and materials required to perform the filming and to provide the finished recording(s) to the Engineer.

**CITY OF HOLLAND
SPECIAL PROVISION
FOR
Aggregate Base, 21AA, ___ inch,
Modified
1 OF 1**

HEI/LEB

10/23

DESCRIPTION:

Construct an aggregate base course on a prepared subbase or subgrade as shown on the plans or as directed by the Engineer. The aggregate base course shall be in accordance with Section 302 and 902 of the 2020 Standard Specifications for Construction, except as specified herein.

MATERIALS:

The material for **Aggregate Base, 21AA, ___ inch, Modified** shall be 21AA aggregate conforming to Table 902-1 and Table 902-2, except for the following modifications.

Sieve Analysis, Total Percent Passing

21AA-Mod.	1 ½":	1"	½"	No. 8	No. 30	LBW
	100	85-100	50-70	20-35	8-22	0-7

Footnote – "E" in Table 902-1 shall not apply to assure the base is permeable

Physical Requirements

Crushed material, Min.95%
Loss, % Max. Los Angeles Abrasion (MTM 102). . .50%

MEASUREMENT AND PAYMENT:

The completed work as measured for **Aggregate Base, 21AA, 8 inch, Modified** will be paid for at the contract unit price for the following contract items (pay items).

PAY ITEM

PAY UNIT

Aggregate Base, 21AA, ___ inch, Modified Square Yard

Payment for **Aggregate Base, 21AA, ___ inch, Modified** shall include all labor and equipment needed for furnishing, hauling, placing, spreading, shaping, compacting, and maintaining the new aggregate to conform to the planned cross section.

CITY OF HOLLAND

SPECIAL PROVISION
FOR
YARD DRAIN

CITY OF HOLLAND/BAD
WIGHTMAN/AJN

1 of 1

08/2016
REV: 02/10/2022

Description: This work shall consist of connecting existing yard drains to the new storm sewer system with PVC pipe, bends, and fittings with a size to match the existing size of yard drain, or the placement of a 4 inch PVC, 6 inch PVC, 8 inch PVC, or 10 inch PVC capped pipe up to the right-of-way line as shown on the plans, or as directed by the Engineer.

Materials: The PVC pipe shall meet the requirements of Section 909.06 of the MDOT 2020 Standard Specifications for Construction.

Construction Methods – The contractor shall connect all existing yard drains to the storm sewer system. There may be more yard drains than shown on the plans.

The contractor shall connect the existing yard drains with PVC bends/fittings and necessary length of PVC pipe in order to connect to a drainage structure. Blind taps are prohibited.

The connection to the existing pipe shall be made in the street right-of-way or drainage easement, not on private property.

When installing sleeves under driveway approaches, the contractor shall install a size and length of PVC pipe as called for on the plans and cap it with a PVC cap. The end of the pipe shall be delineated with a #4 rebar piece at the capped end, positioned vertically and inserted an inch below the surface.

Measurement and Payment: The completed work as measured shall be paid for at the contract unit price for the following:

Pay Item	Unit
Yard Drain	Foot

Yard Drain shall be measured by the lineal foot of PVC pipe measured from the connection to the outside face of the drainage structure. This work will include excavation, pipe cutting, concrete collar, elbows, PVC cap, connections to existing pipe, connections/taps to new catch basins shown on the plans, rebar, backfill, compaction and all necessary labor, materials and equipment required to complete this item.

CITY OF HOLLAND
SPECIAL PROVISION
FOR
DETECTABLE WARNING SURFACE, MODIFIED

CITY OF HOLLAND/BAD
WIGHTMAN/AJN
CITY OF HOLLAND/ALB

1 of 1

08/13/2015
REV: 02/10/2022
REV: 03/18/2024

Description: This work shall be in accordance with the requirements of Section 803 of the 2020 Standard Specifications, except as herein modified.

Materials: Sidewalk detectable warning surface shall meet current Americans with Disabilities Act (ADA) requirements (Title 49 CFR Transportation, Part 37.9 Standards for Accessible Transportation Facilities, Appendix A, Section 4.29.2 Detectable Warnings on Walking Surfaces). The warning surface shall be removable and “Colonial Red” for Armor-Tile® and AlertCast®, and “Brick Red” for the Cast in Place by ADA Solutions in color (Federal Color No. 20109).

- 1) The warning surface shall be:
 - a) Armor-Tile® manufactured by Engineered Plastics, Inc., Williamsburg, NY
 - b) AlertCast® manufactured by Detectable Warning Systems, Inc., Wilmington, NC
 - c) “Cast-in-Place DWS Tile” manufactured by ADA Solutions, Jefferson, OH

Construction: All proposed ramps within the project area shall receive the detectable warning surface. The warning surface shall be sized and placed so the device covers the width of the ramp, a depth of 24 inches, and as indicated on the Standard Plan R-28 Series.

- 1) Contractor shall protect the detectable warning surface from damage from pedestrians, vehicles and equipment during installation of the mat as recommended by the manufacturer.
- 2) Detectable warning surfaces shall be placed per manufacturer recommendations. Using adhesive attached detectable warning surfaces on new sidewalk will not be permitted.

Measurement and Payment: The completed work as measured shall be paid for at the contract unit price for the following:

Pay Item	Unit
Detectable Warning Surface, Modified	Foot

Detectable Warning Surface, Modified shall be paid for at the contract unit price per foot. The minimum width of the Detectable Warning Surface shall be 5 feet or the width of the ramp as shown on the plans.

CITY OF HOLLAND
SPECIAL PROVISION
FOR
CONCRETE WASHOUT AREA

CITY OF HOLLAND/BJW
WIGHTMAN/AJN
CITY OF HOLLAND/ALB

1 of 2

03/2008
REV: 02/10/2022
REV: 03/18/2024

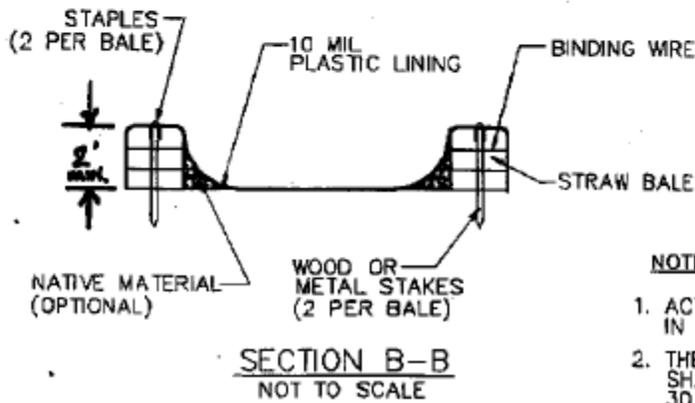
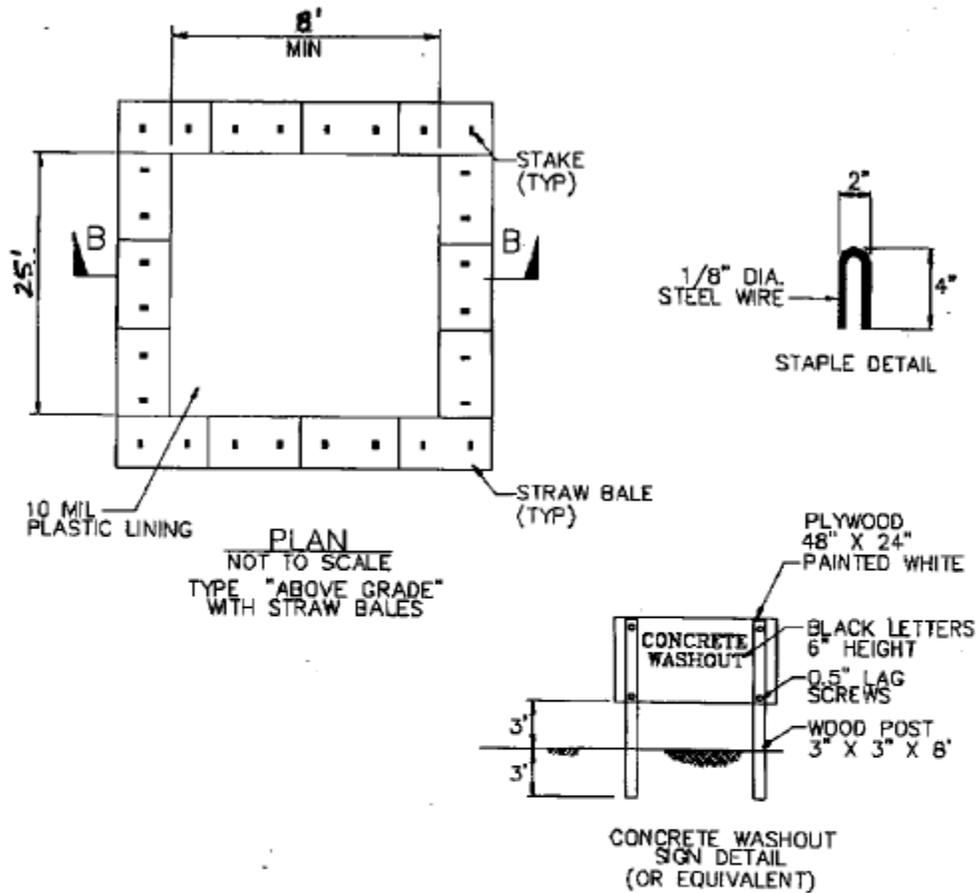
Description: The Concrete Washout Area shall be constructed by the Contractor in accordance with the detail as shown on page 2. The location of the Concrete Washout Area will be staked by the Engineer prior to concrete placement.

Materials: The Concrete Washout Area shall be installed by the Contractor prior to any concrete placement onsite. The Contractor is responsible for furnishing all materials necessary to construct the Concrete Washout Area as shown on page 2. The Contractor may obtain and utilize a prefabricated container that is specially manufactured for the purpose of collecting concrete residue and washout in lieu of constructing the Concrete Washout Area as shown on page 2.

Maintenance and Use: The Contractor shall be responsible for making sure that all trucks delivering concrete to the job utilize the Concrete Washout Area to dump extra concrete residue and when washing out their trucks at the jobsite. The Contractor is responsible for maintaining the Concrete Washout Area. The Concrete Washout Area shall be cleaned out and refitted with a new plastic liner as directed by the engineer in order to maintain capacity for wasted concrete. The Contractor is responsible for properly disposing of all waste material offsite.

Measurement and Payment: The completed work as measured for Concrete Washout Area will be paid for at the contract unit price for the following contract pay item and includes all material, equipment and labor to complete this item. Maintenance of the Concrete Washout Area shall be included in the pay item listed below. Proper disposal of all materials and waste as well as restoration of the area shall be included in the pay item listed below:

Pay Item	Unit
Concrete Washout Area.....	Each



NOTES

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CONCRETE SPILLWAY, MODIFIED

LAN:DLH

1 of 1

APPR:TEB:DBP:04-11-22

a. Description. This work consists of installing a concrete spillway in accordance with section 802 of the Standard Specifications for Construction and Standard Plan R-35 Series, except as modified by the details on the plans and this special provision.

b. Materials. Furnish materials in accordance with subsection 802.02 of the Standard Specifications for Construction.

c. Construction. Construct the concrete spillway in accordance with subsection 802.03 of the Standard Specifications for Construction and Standard Plan R-35 Series, except as modified by the details on the plans and this special provision.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Spillway, Conc, Modified	Foot

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
WOOD FENCE

RSD:JLB

1 of 1

APPR:DMG:JN:02-23-21

a. Description. This work consists of completing the construction of a wood fence at the locations and in accordance with the details shown on the plans and this special provision.

b. Materials. Furnish materials in accordance with subsection 912.10 of the Standard Specifications for Construction, as applicable, with the following additions and exceptions.

- 1. 2 inch by 6 inch fencing and rail boards - minimum retention 0.40 pounds per cubic foot (pcf) pressure treated, S4S, No.2 common or better, Ponderosa Pine.
- 2. 4 inch by 6 inch structural posts - minimum retention 0.60 pcf pressure treated, No.2 Southern Yellow Pine or approved equal.
- 3. Ensure all fasteners are galvanized in accordance with the standard specifications.

Cut all lumber to the sizes shown on the plans and field treat all saw cuts in accordance with subsection 912.03 of the Standard Specifications for Construction.

c. Construction. Complete this work in a craftsman-like manner, in accordance with the details on plans, and in accordance with the standard specifications.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Wood Fence	Foot

CITY OF HOLLAND
SPECIAL PROVISION
FOR
TREE PRESERVATION

CITY OF HOLLAND/BJW
WIGHTMAN/AJN
CITY OF HOLLAND/ALB

1 of 1

12/02/2019
REV: 02/10/2022
REV: 03/18/2024

Description: This special provision covers work necessary to install utilities next to trees that are not called for removal. The construction plans call for preservation of all trees not specifically called out for removal.

Materials: Not Applicable

Construction: The Contractor shall utilize alternate construction techniques including trench boxes, steel sheeting, or other methods during construction of underground utilities adjacent to trees not called out for removal on the construction plans. The Contractor will be in violation of the Contract, if trees are removed that are not specifically called for removal on the construction plans.

The City is planning to have its tree crew in before the start of the project to trim up trees that will be remaining. However, the Contractor shall take into account the size of equipment used and the need to save trees not identified for removal (i.e. the Contractor may need to have a smaller piece of equipment available for a few key areas in order to minimize the impacts to the trees).

Measurement and Payment. The completed work, including all labor and equipment to preserve trees will be paid for at the contract unit price for the following contract item (pay item).

Pay Item	Unit
Tree Preservation	Lump Sum

The Engineer will measure **Tree Preservation** as a lump sum to pay for utilizing the alternate construction techniques to preserve all trees not called out for removal.

CITY OF HOLLAND
SPECIAL PROVISION
FOR
SLOPE RESTORATION, MODIFIED

1 of 2

CITY OF HOLLAND/ALB
SD/LEB

REV: 03/18/2024
REV: 11/19/2025

Description: This work shall consist of grading areas disturbed during construction, furnishing and placing topsoil, seed, fertilizer, mulch, mulch blanket, watering, and weed control in accordance with Section 816 of the 2020 Michigan Department of Transportation Standard Specifications for Construction and as directed by the Engineer.

Materials: All materials shall meet the requirements specified in Section 816.02 of the 2020 MDOT Standard Specifications for Construction.

Topsoil shall be fertile, friable, representative of local productive soils, capable of sustaining vigorous plant growth, free of lumps, subsoil, noxious weeds or other foreign matter (i.e. stones, roots, sticks, litter or other extraneous matter, not frozen or muddy. Acidity range between pH 5.0 and 7.5; organic content not less than 5% nor more than 30% clay content.

The seed mix used for **Slope Restoration, Modified** shall be as follows:

SEED TYPE	LBS PER ACRE
Perennial Ryegrass -25%	62.5
Hallmark Kentucky Bluegrass -30%	75.0
Shamrock Kentucky Bluegrass -30%	75.0
<u>Creeping Red Fescue -15%</u>	<u>37.5</u>
Total Pounds Per Acre	250.0

A wood fiber mulch with tackifier equal to Profile® Blend with Tackifier or better shall be used. The application shall be at the minimum rate of 0.37 pounds per square yard (1800 pounds per acre).

Construction Methods: The contractor shall perform Slope Restoration, Modified in all areas disturbed during construction. The work shall be performed as described in Section 816.03 of the 2020 MDOT Standard Specifications, as modified herein. Materials shall be placed at the rates described therein, or as directed by the Engineer. Mulch Netting and Mulch Blankets are only to be placed on slopes of 1V:3H or steeper.

In lawn areas, spread topsoil to a minimum depth of 4 inches after raking, light rolling and natural settlement. Topsoil may be obtained from the City's compost yard located next to the BPW's electrical peaking plant near the intersection of M-40 and 48th Street. Contractor will be responsible for loading and transport of compost material.

All seeding must be completed by October 10, 2026.

Contractor shall water the Slope Restoration areas for a period of 5 weeks after seeding. Watering shall be in accordance with MDOT Specifications and shall occur a minimum of once per week or more

regularly to prevent seeds and seedlings from drying out.
The OWNER is requiring that the CONTRACTOR be required to select from the following list of pre-approved subcontractors for the surface restoration on the project:

1. Bosch's Landscape Attn.
Russ Hillman
4275 136th Avenue
Holland, MI 49424
616-399-6861
Service@boschlandscape.com

2. Hollandia Gardens Attn.
David Riley
13057 Quincy Street
Holland, MI 49424
616-399-3334
daver@hollandiaoutdoors.com

3. Integrity Landscape
Management Attn. Keith or
Ryan Boerman
139 S. Division
Zeeland, MI 49464
616-688-7600
keith@integritylandscape.net

4. Landscape Design Services
Attn. Mitch Bosma
7351 West Olive Road
Holland, MI 49424
616-886-2688
mbosma@landscapeDS.com

Measurement and Payment:

Pay Item

Slope Restoration, Modified

Pay Unit

Square Yard

Slope Restoration, Modified will be measured by area in square yards. Payment for **Slope Restoration, Modified** includes grading, furnishing and placing minimum 4 inches of topsoil, furnishing and placing seed, furnishing and placing chemical fertilizer nutrient Class A, furnishing and placing mulch or mulch blanket, watering, and furnishing and placing weed control if required by the Engineer. Topsoil, seed, fertilizer, or mulch blanket which is washed out for reasons attributable to the Contractor's activities or failure to take proper precautions to protect the work shall be replaced at the Contractor's expense

CITY OF HOLLAND
SPECIAL PROVISION
FOR
IRRIGATION SYSTEM REPAIR, ALLOWANCE

CITY OF HOLLAND/ALB

1 of 2

03/18/2024

Description: This special provision covers the repair of damaged underground irrigation systems. It is anticipated that some properties within the project limits contain underground irrigation systems within the ROW that may be disturbed or damaged during construction of the utility and surface improvements. Contractor must take care to limit damage to the existing systems once they are identified. It is not the intent of this special provision to cover costs to completely replace irrigation systems.

Materials: Not Applicable

Construction: During construction activities, the CONTRACTOR shall isolate the disturbed/damaged portions of the systems in such a manner that the undisturbed portion of the system remains operational.

CONTRACTOR is required to select from the following list of preapproved subcontractors for the irrigation system repairs on the project:

1. Evergreen Sprinkling
Attn. Kirk Assink
13275 Tyler Street
Holland, MI 49424
616-399-2173
kirk@evergreensprinkling.com
2. Lakeshore Irrigation
Attn. Jason Vanderwall
3294 88th Avenue
Zeeland, MI 49464
616-748-4141
jasonv@lakeshoreirrigation.com
3. West Ottawa Sprinkling
Attn. Scott Dykstra
142 Manufacturers Drive
Holland, MI 49424
616-399-6642
wosprinkling@sbcglobal.net

Should a homeowner request to use their own sprinkler repair contractor who is more familiar with their system, they may do so but will need to be competitive with our bid labor and parts rate. Any difference will be paid by the homeowner. Homeowners who choose this option will submit invoices to the ENGINEER for review and approval for payment.

Measurement and Payment: The completed work, including all labor and equipment to repair damaged portions of the existing underground sprinkling system to acceptable operating conditions, will be paid for at the contract unit price for the following contract item (pay item).

Pay Item	Unit
Irrigation System Repair, Allowance	Dollar

Sprinkler Contractor shall provide a unit price for labor (labor rate) and a typical parts listing cost sheet which shall be submitted along with the Contractor's bid. These costs shall be used for the duration of the project when invoicing for the work. Invoices shall include the address or addresses where the repairs were made.

CITY OF HOLLAND
SPECIAL PROVISION
FOR
EROSION CONTROL, INLET PROTECTION

CITY OF HOLLAND
WIGHTMAN/AJN
CITY OF HOLLAND/ALB

1 of 1

07/21//2015
REV: 02/10/2022
REV: 03/18/2024

Description: This work shall include all materials, labor and equipment to install inlet protection devices at all existing and proposed catch basins shown on the plans in accordance with the requirements of Section 208 of the *2020 Standard Specifications for Construction* and this Special Provision.

Materials: **Erosion Control, Inlet Protection** shall be *Price and Company, Catch All; ACF Environmental, Silt Sack; UltraTech International, Inc., Ultra-Drain Guard® Reusable Model* or approved equal, and shall meet the requirements of Section 910 of the *2020 Standard Specifications for Construction*.

Construction: The inlet protection shall be placed in all existing and proposed catch basins within the construction influence area, or as directed by the Engineer. The inlet protection devices shall be installed and maintained per the manufacturer's specifications.

Measurement and Payment: The completed work as measured will be paid for at the contract unit price and includes all material, equipment and labor to complete this item.

Pay Item	Unit
Erosion Control, Inlet Protection	Each

Erosion Control, Inlet Protection includes furnishing, placing, maintaining and disposal of the bag. Any replacement or repair due to Contractor's operation or negligence will be at the Contractor's expense. **Erosion Control, Inlet Protection**, replaced due to reasons other than the Contractor's operations or negligence will be measured and paid for separately. Removal and disposal of the accumulated sediment or debris will be included in payment for as **Erosion Control, Inlet Protection**.

HOLLAND BOARD OF PUBLIC WORKS (HBPW)

SPECIFICATION FOR WATER DISTRIBUTION SYSTEMS – 33 10 00

HBPW: AW/BR/BC

1 OF 17

3-27-2025

PART 1 - DESCRIPTION

1.1 SUMMARY

- A. Section includes furnishing and installing pipe, appurtenances and accessories for ductile iron water distribution systems including hydrostatic pressure testing, disinfection, bacteriological sampling, underground utility conductivity and continuity, testing and reporting and disposal of chlorinated water and the removal / abandonment of pipe and appurtenances. All work shall conform to the 2020 MDOT Standard Specifications for Construction as modified by the HBPW. Non-itemized work will not be paid for separately.

1.2 MISCELLANEOUS

- A. Record and provide actual locations of mains, valves, fittings, thrust restraints and elevations of pipe. Identify, describe, record and provide unexpected subsoil conditions and uncharted utilities.
- B. Provide a Disinfection Report which includes: Disinfection and testing procedures; Type, form and levels of disinfectant used; Equipment used; Date and time of disinfectant injection start and time of completion; Test locations; Name of person collecting samples; Initial and 24 hour disinfectant residuals (ppm) of treated water for each outlet tested; Date and time of flushing start and completion; Disinfectant residual (ppm) after flushing for each outlet tested.

PART 2 - MATERIALS

- 2.1 Provide materials and products for permanent incorporation into the work that were produced only in the contiguous United States. Foreign produced materials and products will not be accepted.

2.2 WATER MAIN, DI

- A. Pipe
 1. Class 52, Conforming to ANSI/AWWA C151/A21.51, NSF 61 Certified,
 2. 18' or 20' sections or as indicated,
 3. Double thickness cement lined in accordance with ANSI/AWWA C104/A21.3
 4. Zinc Coated shall be standard, unless a written exception is granted by the HBPW, and shall have the exterior of the pipe coated with a layer of arc-sprayed zinc per ISO 8179. The mass of the zinc applied shall be 200 g/m² of pipe surface area. A finishing layer topcoat shall be applied to the zinc. The mean dry film thickness of the finishing layer shall not be less than 3 mils with a local minimum of not less than 2 mils. The coating system shall conform in every respect to ISO 8179-1 "Ductile iron pipes – External zinc-based coating – Part 1: Metallic zinc with finishing layer. Second edition 2004-06-1".

HOLLAND BOARD OF PUBLIC WORKS (HBPW)

SPECIFICATION FOR WATER DISTRIBUTION SYSTEMS – 33 10 00

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- B. Joints
 - 1. 150 psi rated conforming to ANSI/AWWA C111/A21.11,
 - 2. Push-On Joint Restraint shall consist of stainless steel locking segments vulcanized into the gasket, Push-on Joint Restraint shall only be used on main line linear restraint, **only with prior approval by BPW. Failed Push-On Joint Restraint shall be cut out, not pulled apart.**
 - 3. Mechanical Joint Restraint shall be EBAA Iron, Inc. Series 1100 “MEGALUGS” or HBPW approved equal.
 - 4. Minimum of two (2) bronze wedges per joint for continuity on Ductile Iron Main,
- C. Polyethylene Encasement, DI
 - 1. 8-mil polyethylene per ANSI/AWWA C105/A21.5, black or blue in color for water main or purple in color for reuse main,
 - 2. Closed with 2” Poly Ken #900 and Scotchwrap #50

2.3 WATER MAIN, PVC

- A. Pipe
 - 1. C-909 and C-900 PVC DR 18 235 psi pipe may be used with approval by HBPW staff for sizes 8 inches or smaller. If PVC is used, appropriate Mega-lugs must be used for PVC pipe
- B. Joints
 - 1. PVC main joint restraints shall be bell clamp with a submittal approved by the BPW prior to use.
 - A. EBAA Series 1900 for C-909 and EBAA Series 1600 for C-900 or HBPW approved Equal.
- C. Polyethylene Encasement, PVC
 - 1. No Encasement for PVC Main.

2.4 FITTINGS, DI AND PVC

- A. Ductile iron, push on or mechanical joint, 350 psi rated joints conforming to ANSI/AWWA C153/A21.53.
- B. Transition gaskets (for new construction) shall be used for all fittings up to 8” transitioning from iron pipes sizes (IPS) to ductile iron pipes sizes (DIPS) and meeting the ANSI/AWWA C111/A21.11 standard.
 - 1. Nitrile or FKM gaskets shall be used in areas of suspected soil contamination,
- C. Bolts shall be Cor-Blue bolts conforming to ANSI/AWWA C111/A21.11.

2.5 TRACER WIRE & CONNECTIONS

- A. Tracer wire shall be a #14 AWG (0.0641” diameter) fully annealed, high carbon 1055 grade steel, high strength solid copper clad steel conductor (HS-CCS), insulated with a 30 mil,

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high-density, high molecular weight polyethylene (HDPE) insulation, and rated for direct burial use at 30 volts.

1. Copperhead High Strength 1430 or approved equal.
- B. Splices shall be made using properly sized, waterproof connectors rated for underground service.
1. UL listed and NEC approved Underground waterproof wire nuts. DRYCONN waterproof connectors are locally available.
- C. Grounding of tracer wire shall be achieved by using a 1.5-lb, drive-in, magnesium Ground Rod (ANO-12) with a minimum 20-feet, #12 red HDPE insulated copper-clad steel wire connected to the rod.
1. Copperhead ANO-12 ground rod or approved equal.
- D. All two-terminal tracer wire access points must include a manually interruptible conductive/connective link between the terminal for the tracer wire connection and the terminal for the ground rod wire connection.
1. Copperhead Cobra Access Point T2-B-FLPKG or approved equal.

2.6 UTILITY MARKER POSTS

- A. Marker posts shall be blue 72-inch Rhino Tri-View Marker Posts with 2 external terminals, or Rhino HideOut 24-inch flush mount test station color coded in accordance with PA 174 of 2013, as amended. Caps shall be black in color. The BPW will supply decals for the marker posts. When necessary, locations and types of marker posts to be used will be determined by the BPW.

2.7 GATE VALVE AND BOX

- A. Resilient Seated Gate Valves: Conforming to AWWA C509 or AWWA C515, NSF 61 Certified, sized as indicated on the drawings, right-hand open (clockwise). The HBPW W/WW Services Department reserves the right to approve or reject any valve for use in the water distribution system.
1. EJ or HBPW approved equal
 2. Valve body, bonnet and seal plate shall be ductile iron.
 3. Valve stem shall be stainless steel.
 4. The rated working pressure of the valve shall be 250 psi.
 5. The interior shall be free of pockets or ledges where debris can collect.
 6. All gaskets shall be pressurized o-rings. Packing glands are not permitted.
 7. The valve body and bonnet shall be coated on all exterior and interior surfaces with a fusion-bonded epoxy in conformance with AWWA C550.
 8. Bolting materials shall be stainless steel and meet ASTM A307, Grade B
 9. Gate valves 20" and larger shall have an enclosed beveled spur gear, lay on the side operation, to ensure proper coverage.

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10. The manufacturer's name, valve size, year of manufacture, pressure rating, AWWA Standard, and "DI" shall be cast on the valve.
11. The valve shall be designed so that during operation or cycling of the valve, there is no friction or abrasion or rubbing together of the gate and body that can wear away any rubber or epoxy and expose bare iron. Gates shall be completely covered with rubber over all interior and exterior ferrous surfaces. The rubber shall be securely bonded to the gate body, including the part that houses the stem nut. The stem nut through the gate shall be fully opening top to bottom and shall be solid ductile iron.
12. All valves shall be assembled solely of components manufactured within the continental United States to assure timely shipment and access to manufacturing facilities. All valves shall be assembled and tested within the continental United States to assure timely shipment and access to assembly and testing facilities.
13. All required Drawings, manuals, parts lists and certifications must be furnished. Manufacturer shall certify that the valves furnished meet this Specification and any materials found not conforming to this specification subsequent to acceptance and/or installation shall be rejected and replaced.
14. Boxes shall be cast iron, 3 sectional, screw-type adjustable to allow top to be set flush with final grade elevation of pavement or ground surface. Cast iron lids shall be provided with the word "water" or "reuse". The box shall be designed for highway loads and shall be Buffalo type.
 - A. EJ 8560 Series or HBPW approved equal

2.8 WATER SERVICE

A. Ball-Type Corporation Stops

1. The brass alloy used shall meet the requirements of UNS/CDA C89520 or C89833 as listed in ANSI/AWWA C800. The product shall meet NSF/ANSI Standards 61 Annex G and 372. The corporation shall be packed joint with a lock-down nut for copper tubing as specified in this section. All corps shall conduct electrical current from the pipe it's connected to through the body of the valve to the pipe connected to it without exception. Equivalent flare connection valves may be accepted upon approval by the HBPW.

- A. Ford Meter Box FB1000-x-NL, AY McDonald 74701B-22 (no lead), Mueller P-25008-N or HBPW approved equal

B. Service Saddles

1. Ductile Iron Main - Service Saddles are required for all 1.5" and 2" Service Connections. The saddle shall consist of brass nuts and a brass body with an EPDM gasketed outlet tapped with an AWWA taper. Straps shall be double, flattened silicon bronze. The brass alloy used shall meet the requirements of UNS/CDA C83600 per ASTM B62, ASTM B584 and ANSI/AWWA C800.

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- A. Ford 202BS, AY McDonald 3825-4148, Mueller BR2S/W or HBPW approved equal
2. PVC Main - Service Saddles shall be used for all service taps 2 inches in diameter and smaller.
 - A. Ford S90-80X or HBPW approved equal
- C. Pipe
 1. The minimum size of water service pipe shall be one inch (1”).
 2. Sizes one inch (1”) through two inch (2”) shall be Type K copper - ASTM B88.
 3. Sizes larger than two inches (2”) shall be match current HBPW specifications for water main for pipe in the Right of Way..
 4. Any other materials for use on private property must meet the approved material list in Table 605.3 of the current Michigan Plumbing Code. HBPW recommends Type K copper for two inches (2”) and under and HDPE Poly-wrapped Ductile Iron for services larger than two inches (2”).
 5. Fittings for copper leads shall be flared or compression type. No soldered joints are allowed in any underground installations.
- D. Ball-Type Curb Stop and Curb Box
 1. The brass alloy used shall meet the requirements of UNS/CDA C89520 or C89833 as listed in ANSI/AWWA C800. The product shall meet NSF/ANSI Standards 61 Annex G and 372. The curb stop shall be packed joint with a lock-down nut for copper tubing as specified in this section. All curb stops shall conduct electrical current from the pipe it's connected to through the body of the valve to the pipe connected to it without exception. Equivalent flare connection valves may be accepted upon approval by the HBPW.
 - A. Ford Meter Box B44-XXX-NL, AY McDonald 76100-22 (no lead), Mueller P-25209-N or HBPW approved equal
 2. Cast iron Buffalo Box with arch pattern screw adjustment, 2¼” minimum shaft ID.
 - A. Tyler / Union 6500 Series Box 95-E or HBPW approved equal.

2.9 METERHORNS AND BALL VALVES

- A. HBPW requires the use of meter horns for five-eighths inch (5/8”), three-fourths inch (3/4”) and one inch (1”) meter installations. These requirements pertain to new service installations, service replacements and installation of additional meters.
- B. Meter Horn assemblies and Ball Valves must meet the following HBPW specifications:
 1. Meter Horns
 - i. 5/8” Ford CH88-143
 - ii. 5/8” McDonald 40-3MM43

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- iii. 3/4" Ford CH88-343
- iv. 3/4" McDonald 40-3MM43
- v. 1" Ford CH88-444
- vi. 1" McDonald 40-4MM44
- 2. Ball Valves
- vii. 600 WOG

- C. The horns for a one inch (1") meter must have a one inch (1") ball valve on the inlet and a one inch (1") ball valve on the outlet. The horn for five-eighths inch (5/8") and three fourths inch (3/4") meters must have a one inch (1") ball valve on the inlet and a one inch (1") ball valve on the outlet.

2.10 DRAINAGE PITS OR METER PITS FOR METER SETTING

- A. Upon HBPW approval seasonal meters may be installed outside or in meter pits when no building structure is available, or if HBPW determines a meter pit is warranted due to excessive service line length from the main to the building being served.

B. Drainage Pit Policy and Requirements

- 1. Drainage pits are required for winterization of seasonal services when the meter is installed above ground. Only licensed plumbers, irrigation contractors, and other persons with written authorization from HBPW are allowed to open or close any valves in drainage pits. Under no conditions will the meter be removed and the water pumped or siphoned from the service line. Drainage pits must also meet the following requirements:
- 2. Drainage pit must be installed on private property within 15 feet of both the water meter and any backflow prevention device used.
- 3. Drainage pits can be constructed of reinforced concrete or tile of adequate strength for the conditions encountered. A base is not allowed and six inches (6") of pea stone is required under the service pipe.
- 4. Water service must be type "K" copper up to the meter.
- 5. A tee with curb stop is required in the drainage pit for draining of water from the meter, and backflow device into the pit. All fittings and curb stops must be lead-free brass and located at a depth of five feet (5').
- 6. Hose bibs are not allowed in the drainage pit.

C. Meter Pit Policy and Requirements

- 1. Installation of meter pits must be approved by HBPW. Meter pits will only be approved if no building owned by the customer is available for the meter installation, or if HBPW determines a meter pit is warranted due to excessive service line length from the main to the building being served.
- 2. All meter pits must be located on private property and must meet the following requirements:
- 3. The small meter pit is acceptable for meter sizes two inches and smaller.

HOLLAND BOARD OF PUBLIC WORKS (HBPW)

SPECIFICATION FOR WATER DISTRIBUTION SYSTEMS – 33 10 00

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4. The large meter pit is required for multiple meter settings, meters larger than two (2) inches, or pit installations which contain booster pumps.
5. Meters in pits shall be placed so they can be read without entering the pit.
6. Installation of a sump pump is required in all meter pits.
7. Valves are required on both sides of the meter. To facilitate winter shutdown, the valve installed on the inlet side of the meter must be a ball valve. For six (6) inch meters a resilient wedge gate valve is required. These requirements do not alter the requirements for meter horn installations.
8. One outlet downstream of the meter is allowed for winterization. This outlet must contain and terminate at a ball valve and can only be used to drain the system. This outlet must be closed during the winter.
9. Hose bibs are not allowed in the meter pit.

2.11 LIVE TAP

- A. Tapping valves shall conform to the requirements of gate valve and box as specified above, be made with conformance to the shape required to allow a tapping machine to tap directly through the open valve, and have a mechanical joint to connect to the tapping sleeve and a flanged joint to connect to the main, unless otherwise indicated. Flange bolts shall be type 304 stainless steel.
- B. Tapping sleeves shall be stainless steel split sleeves with flanged outlet. All flange nuts and bolts shall be stainless steel and conform to ASTM A307, Grade B.

2.12 FIRE HYDRANT

- A. The HBPW W/WW Services Department reserves the right to approve or reject any fire hydrant for use in the water distribution system.
 1. EJ WaterMaster 5BR250 or HBPW approved equal
 2. Manufactured / tested in accordance with UL 246, FM 510 and AWWA C502.
 3. Designed so that one person can replace any or all of the working parts without removing the main valve seat and, in case of accident or breaking of the hydrant barrel, valve will remain closed by mechanical design.
 4. 5¼" valve opening, minimum
 5. Inlet shall be 6" mechanical joint and NSF 61 Certified.
 6. Hydrant shall be of proper length for installation in a trench of 5.5'
 7. Two, 2½" national standard thread hose nozzles
 8. One factory installed 5" Harrington Storz pumper / steamer connection
 9. Square 15/16" operating nut
 10. Shall be right-hand open (clockwise)
 11. Designed for a minimum working pressure of 150-psi and tested at 300-psi
 12. Drain orifice shall be plugged.
 13. The upper barrel of the hydrant shall be "Safety Yellow"
 14. Two coats of asphalt varnish shall be applied to the section below ground.

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15. All nozzles shall be on a removable head, not on the hydrant barrel, so that they may be rotated by changing the position of the top flange, without removing the barrel.

2.13 SUBMITTALS

- A. Provide product data on all materials, appurtenances and accessories.
- B. The manufacturer shall furnish certified transcripts of the results of tensile tests, a listing of the length and weight of each piece, a list of the pieces rejected and the reason for the rejection. The manufacturer shall also furnish a sworn statement that the inspection and all of the specified tests have been made and that the results comply with the requirements of the applicable standard.
- C. Manufacturer's certification of compliance to ANSI/AWWA C111/A21.11 shall accompany each shipment of Cor-Blue bolts.

2.14 MISCELLANEOUS

- A. Standpipes shall be a minimum of 4-inches in diameter with separate flushing and testing ports.
- B. Pressure Test Gauge shall be liquid filled, have a maximum reading of 200 psi, have hash marks in increments of 5 psi and have certification of calibration within the past 12 calendar months prior to use.
- C. Backflow Prevention Device shall be rented from or approved by the HBPW. The Backflow Prevention Device shall be capable of achieving the required flushing velocity. For pipes 8-inch in diameter or larger, 4-inch Backflow Prevention Devices or larger may be required and are not available for rent from the HBPW.
- D. Disinfection Chemicals shall be Liquid Chlorine or Sodium Hypochlorite (liquid) per AWWA B300

PART 3 - CONSTRUCTION

3.1 STORAGE

- A. Pipe delivered to the site should be pressure washed with a bleach solution, capped with water tight caps and placed appropriately to minimize the entrance of foreign material and other contaminants.
- B. Valves delivered to the site shall be stored in shipping containers with labels in place.

3.2 WATER MAIN

- A. The Contractor shall verify the existing main depth, composition, diameter and location at the proposed connections / relocations to permit adjustment prior to construction. Adjustments to unit prices will not be considered.
- B. Water main relocations shall extend to the first undisturbed joint beyond the trench. Solid sleeve couplings shall only be used in reconstruction projects.

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- C. Mains may be relocated over a conflicting utility only when 5' of cover will be maintained over the relocated main and a minimum vertical separation of 18" will be maintained between the two utilities.
- D. Route the pipe in a straight line.
 - 1. There will be no allowable deflection for PVC pipe.
 - 2. Allowable deflection for DI pipe to follow manufacturer's recommendation.
- E. Unless otherwise indicated in a profile, mains shall be installed with a minimum cover of 5' as measured from the permanent centerline elevation (or existing road elevation if the permanent pavement elevation is not known) or existing ground at main, whichever results in a lower elevation. Where the main crosses a ditch a minimum cover of 5' shall be maintained.
- F. A minimum horizontal separation of 10' from water main and all sewers (including reuse main) and a minimum vertical separation of 18" from water main and all utilities shall be maintained. Where pipe deflection is not possible, 22.5 ° vertical bends shall be used to obtain the required separation.
- G. All Ductile Iron mains shall be polyethylene encased. The polyethylene shall be overlapped and secured with tape. Installation Method 'C' as described in ANSI/AWWA C105/A21.5 shall be used. Damaged polyethylene shall be repaired prior to backfilling.
- H. The bell holes shall be excavated to sufficient width and depth to permit proper joining of pipe and thorough examination of joints.
- I. Every precaution shall be taken to prevent any foreign materials from entering the pipe while it is being placed. When pipe installation is not in progress, the open ends of the pipe shall be closed by a cover or a plug. If water is in the trench, the seal shall be a watertight seal and shall remain in place until the trench is completely dry. Pipe shall not be laid in water nor laid when, in the opinion of the Engineer or his representative, trench conditions are unsuitable.
- J. Rubber gaskets for mechanical joints shall be carefully placed and bolts drawn up evenly and progressively.
- K. When joining push on type joint pipes, the gasket will be wiped clean, flexed and then placed in the socket. A thin film of lubricant will be applied to the inside surface of the gasket that will come into contact with the entering pipe. Only manufacturers' recommended lubricant will be allowed. When installing gaskets in freezing weather, the gaskets will be kept warm and pliable prior to their use.
- L. When the pipe has been cut in the field, the cut end will be reconditioned. The outside of the cut end shall be tapered back about 1/8" at an angle of about 30 degrees in order to remove any sharp, rough edges which might damage the gasket.
- M. Install pipe to allow for expansion and contraction without stressing pipe or joints.
- N. Thrust blocks may not be used in lieu of restrained joints.
- O. When new pipe is connected to non-restrained pipe using 45 degree (or greater) bends or tees, thrust blocks set against or piling driven into solid bearing shall be constructed as pipe restraint. All such restraints shall be approved by the Engineer prior to backfill operations.
- P. Temporary dead ends shall be closed with ductile iron plugs or caps and equipped with standpipes.
- Q. Bore and jack shall follow HBPW current Jacking specifications, unless plans call for meeting specifications of another permitting authority such as CSX.

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- R. Pipe shall be bedded in accordance with AWWA C600. The HBPW standard of practice is complete trench backfill with suitable sand. Native soils shall be reviewed with HBPW staff for reusability prior to pipe placement.
- S. PVC unrestrained pipe joints shall be monitored at each joint before burying, with the reference mark clearly visible.
 - 1. No power equipment shall be used to seat PVC gasketed joints.
 - 2. If inspection of placed joints reveals over insertion with no reference mark visible, the installer shall install EBAA Mega Stop 5000 bell protection system at all remaining unrestrained joints at no extra cost.
- T. Pipe restraint shall follow EBAA Iron pipe restraint calculator. <https://rlc.ebaa.com/calculator.php>
 - 1. Trench Type – Type 3
 - 2. Soils - CL
 - 3. Depth of Bury -5 ft. is minimum bury depth, use actual depth of main
 - 4. Design Pressure – 150 psi
 - 5. Safety – 2.5-1

The resultant table values indicate the amount of pipe restraint in feet needed to be laid before and after the bends. Use the table of values to reference for **both PVC and ductile iron pipe**. For dead ends and reducers, the length indicated is the amount to be lain before the transition.

Table 1: Poly Wrapped Ductile Iron Restraint Table

Poly Wrapped Ductile Iron							
Pipe Size (in)	Bends				Dead Ends	Reducers	
	Tees, 90°	45°	22.5°	11.25°		One size	**
4"	22	9	5	3	66	21	21
6"	31	13	7	3	93	48	62
8"	40	17	8	4	122	51	88
12"	57	24	12	6	173	92	92
16"	74	31	15	8	224	95	95
20"	90	37	18	9	273	96	96
24"	105	44	21	11	321	96	138
30"	127	53	26	13	388	136	211
36"	148	62	30	15	453	137	248

** Restraint required for pipe size reduced to 4 in
All Lengths are in feet.

Also, to augment the above, in the straight through direction, the minimum length of the first pipe on either side of the tee shall be 10'. In those cases where a valve is placed at the tee, the valve shall be restrained with Mega-Lugs, and the next pipe shall be a minimum length of 10'.

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3.3 WATER SERVICE

A. Location

1. All water service leads shall be installed at a minimum depth of five feet (5') with reference to the centerline of the road. Separation of water and sewer shall be in accordance with the current Michigan Plumbing Code.
2. The curb box shall be located seven feet (7') from the property line or in a location approved by HBPW.
3. The service lead shall run at ninety degrees (90°) to the main at the connection to the main and then ninety degrees (90°) to the front of the building at the curb box.
4. A new service tap on an existing water main shall be a minimum of 3 feet from an existing service tap.
5. All surface structures outside paved areas shall be set to the plan elevation of 0.20' above the adjacent ground.

B. Installation

1. Each service shall consist of a corporation stop, necessary tubing or piping and curb stop complete with service box. New connections will be supplied curb boxes at no charge by HBPW.
2. Copper Services
 - A. An existing service shall be relocated in one continuous operation. Couplings for copper water services are not permitted under paved surfaces.
3. Large Diameter Services
 - A. Service installations larger than 2 inches in diameter must meet the specifications for water main construction.
4. Service lines up to two inches (2") in diameter shall be tested by HBPW personnel at the same pressure as the water main to which the service line is connected normally operates.
5. Large Diameter Service lines larger than two inches (2") shall be inspected and pressure tested by HBPW personnel at 150 psi for two hours. The entire service line shall be completely free of leaks under test conditions. Bacteriological samples must be taken and tested by HBPW personnel in accordance with AWWA Standard C651. Tests taken or performed by other agencies will not be accepted.
6. Unconnected services shall be marked with 2"x2"x12' hardwood markers, placed vertically at the end of the pipe, painted blue and a 2'x3/8" diameter piece of rebar placed 1' below grade.
7. Broken services shall be turned off at the corporation, cut and disconnected. The new service shall be installed, and the original water service shall be removed.
8. Abandonment of existing services shall be as follows: The corporation stop will be shut off. Water service will be severed by removing a 1-foot section near the corporation stop. Abandoned water service to be marked with a painted blue, 2"x2" hardwood marker to 2' above the main.
9. Unconnected ends of new service pipe should be protected during work to prevent foreign materials such as dirt from entering active service lines.

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10. Existing Galvanized Steel water services shall be replaced in compliance with the EGLE Lead Service replacement rules and the HBPW Galvanized Service Replacement specification

3.4 METER HORNS AND BALL VALVES

- A. Meter horn assemblies are required on the service line at the point where it enters the building. They must be protected from freezing and must be accessible for meter reading, repairs, and maintenance.
- B. The ball valve must be installed before the service line is inspected.
- C. For multiple meter installations on new service lines, the plumbing contractor must install a tee to split the service. All fittings on the inlet side of the meter shall be lead-free brass. An inlet valve, meter horn, and outlet valve, is required for each meter setting.
- D. For meter settings requested prior to the completion of internal plumbing, the plumbing contractor must provide adequate support of the horn assembly.
- E. Meter tails, when needed, may be provided by HBPW.
- F. The following listing indicates whether a meter horn is required:

Activity	Horn Required?
Change meter size - existing meter tails	No
Change meter size - existing meter horn	Yes
Install additional meter(s) - existing meter tails	Yes*
Install additional meter(s) - existing meter horn	Yes
Install meter on service that is inactive/existing meter tails	No
Replace service from main into building	Yes
Replace service from main to curb box only	No
Replace service from curb box into building	Yes
Replace portion of service through wall or floor	No
Make repairs outside of building	No
Make repairs inside of building before meter	No
Install meter(s) on new service	Yes
*Existing meter does not have to be installed in meter horn	

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3.5 TRACER WIRE & CONNECTION POINTS

- A. Tracer wire and marker posts shall be installed directly on top of the respective utility. In no case shall a discrepancy of more than 6-inches exist between the utility and the tracer wire, unless approved by the BPW.
- B. Marker posts shall be installed per the manufacturer's instructions for direct bury installation. The tracer wire shall be connected to the external terminals. The external terminals shall be configured such that only the brass nuts and washers are visible from the outside of the post.
- C. In the event the utility is located entirely under a paved surface the marker post shall be installed in the nearest unpaved right of way/easement a minimum of 12-inches from the edge of pavement.
- D. Marker posts shall be installed plumb with a clear line of sight to all surrounding posts. In no case shall tracer wire be installed on the outside of a marker post.
- E. Tracer wire shall be installed with 10-feet of slack on either side of all connection points.
- F. Tracer wires of parallel utilities shall not remain in contact.
- G. For water main with regularly spaced fire hydrants the tracer wire shall follow the hydrant lead from the main and connect directly to the lower standpipe section immediately below the swivel flange. This shall apply to all hydrants within the construction influence area. Tracer wire shall be run up and connected to the tracer wire access point on the back side of the hydrant barrel. The tracer wire access point is to be secured with the hydrant flange kit to the north bolt of the stand pipe section. Tracer wire to be protected with 1 inch pvc conduit dry fit into the tracer wire access point, with the conduit extending a minimum of 6 inches below finish grade.
- H. At connections to existing main without tracer wire, the wire should be wrapped around the terminating Mega-Lug with 10 feet of slack.
- I. For water main without regularly spaced hydrants the tracer wire shall extend upward from the main and connect directly to the points provided in the marker posts. Locations of the marker posts or HideOut test stations shall be determined by the BPW.
- J. Tracer wire shall be placed with Fire Services up to and into the building, terminating at the first interior flange on the Fire Service, in a manner similar to terminating tracer wire at hydrants.
- K. Ground rods shall be placed at each dead end or tie-in and at each hydrant.
- L. Install Cobra Access point with hydrant flange and 1 inch conduit to 6 inches below grade at the north nut of the nearest to grand flange on each hydrant.

3.6 GATE VALVE AND BOX

- A. Set valves on solid bearing,
- B. Valves shall only be installed on sections of mains that are horizontally level,
- C. Center and plumb valve box over valve,
- D. Without exception, service curb valve and box shall be installed on a portion of the water service that is perpendicular to the face of the building it services,
- E. Water service corporation valve shall be inserted directly into the main or HBPW approved clamp, saddle or coupling. Insertion must be at an angle less than 45 degrees from the horizontal and on the same side of the main as the customer being served,

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- F. All surface structures outside paved areas shall be set to the plan elevation of 0.20' above the adjacent ground.
- G. For curb boxes set in concrete, a PVC Pipe sleeve shall be placed in the concrete around the curb box and the void filled with silica sand.
- H. Valve box to be set according to Detail WM-2 with concrete backfill at grade.

3.7 FIRE HYDRANTS

- A. Set hydrants plumb; locate Storz connection perpendicular to and facing roadway with the center of the connection 18" above the finished grade at the hydrant. At no cost to the owner, the Contractor may be required to exchange ordered hydrants for shorter hydrants in order to address utility conflicts.
- B. Thrust blocks may not be used in lieu of restrained joints. Restrained joints shall be installed in accordance with Table 2,
- C. As indicated, locate hydrants and control valves on solid bearing to grade,
- D. Breakable portion of the stem coupling shall be placed at or just above finish grade,
- E. Verify that all hydrant drains and weep holes are plugged,
- F. All hydrant barrels shall be encased in polyethylene and taped from the hydrant valve to 3" below grade. The polyethylene encasement under the hydrant flange shall not be exposed once restoration is complete.
- G. All surface structures outside paved areas shall be set to the plan elevation of 0.20' above the adjacent ground.
- H. Hydrants not yet in service, or taken out of service shall be marked "OUT OF SERVICE". In a manner approved by the BPW.
- I. At no cost to the owner, the Contractor shall replace any hydrant damaged beyond repair by the Contractor or his assigns. This shall include hydrants stripped, to any degree, of factory applied primer.
- J. Prior to the owner's final acceptance of construction, it is the Contractor's responsibility to pump all hydrants dry and verify that they remain dry no earlier than 30 days following the initial pumping.

3.8 HYDROSTATIC PRESSURE TESTING

- A. After completion of the pipeline installation, including partial backfill, but prior to final connection to the existing system, conduct, in the presence of the BPW, concurrent hydrostatic pressure and leakage tests in accordance with AWWA C600.
- B. Provide all personnel, equipment, corporation stops, gauges, pumps, standpipes, temporary blocking and other necessary apparatus requested by BPW personnel to perform the leakage and hydrostatic pressure tests. Standpipes shall be a minimum of 4" in diameter.
- C. Before applying test pressure, air shall be expelled completely from the section of piping under test. If air cannot be expelled from existing hydrants, corporation cocks shall be installed. After the air has been expelled, the hydrants or corporation cocks shall be closed and test pressure applied. If installed, the corporation cocks shall be removed and plugged after successful completion of the test.
- D. Dead ends, bends at hydrants and other fittings shall be properly restrained before testing.

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- E. Tests shall not be made against closed valves.
- F. Slowly bring the piping to test pressure and allow the system to stabilize prior to conducting the leakage test. Valves shall not be operated at pressures above the rated valve pressure.
- G. Pressure test potable water systems at 150 psi for a minimum of 2 hours or longer as needed for the BPW to examine the line. Repair leaks and re-test.
- H. All exposed piping, fittings, valves, hydrants, and joints shall be examined carefully during the hydrostatic pressure test. Any damaged or defective materials discovered following the pressure test shall be repaired or replaced with sound material at no cost to the Owner, and test shall be repeated to the satisfaction of the BPW.
- I. No pipeline installation will be approved if the pressure varies by more than 5 psi during the duration of the test.
- J. An allowable loss pressure test can only be used at the discretion of the BPW.
- K. Pressure Test Gauge shall be liquid filled, have a maximum reading of 300 psi, have hash marks in increments of 5 psi and have certification of calibration within the past 12 calendar months prior to use.
- L. One complete hydrostatic pressure test will be witnessed by the BPW and considered normal service. If the first test does not fulfill all requirements of these hydrostatic pressure testing procedures, the BPW reserves the right to recoup any and all expenses for subsequent witnessing of hydrostatic pressure tests from the Contractor.

3.9 WATER MAIN DISINFECTION, SAMPLING AND TESTING

- A. When flushing or filling mains under construction from an existing municipal water main a backflow prevention device shall be utilized.
- B. One complete hydrostatic pressure test will be witnessed by the HBPW and considered normal service. If the first test does not fulfill all requirements of these hydrostatic pressure testing procedures, the HBPW reserves the right to recuperate any and all expenses for subsequent witnessing of hydrostatic pressure testing.
- C. At least 1 set of bacteriological samples shall be collected from every 1,200 LF of water main, at least 1 from each end and at least 1 from each branch that is 10 LF in length or longer.
- D. All necessary appurtenances for sampling will be provided by the contractor. These include pipe tapping, standpipe, valves, and spigot sample point.
- E. Disinfection of the installed main shall be in accordance with AWWA C651 continuous-feed method including preliminary flushing of all mains and branches at a velocity of not less than 3.0 ft/sec. The initial free chlorine concentration in all parts of the new system shall be no less than 25 mg/L. The contact time shall be at least 24 hours during which all valves and hydrants shall be operated. After the contact time the residual chlorine concentration shall be 10 mg/L or greater.
- F. The minimum quantity of chlorine required to achieve a minimum 25 ppm concentration can be estimated using Equation 2. Note that the equation predicts the amount of *total* chlorine. Additional chlorine solution may be required to achieve an acceptable *free* chlorine concentration.

(Equation 2)

$$S = \frac{V}{C \cdot 200}$$

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Where:

V = Volume of water in the pipeline, in gallons

C = Percentage of chlorine in chlorine solution (use 13 for 13% chlorine solution)

S = Volume of chlorine solution to add to pipeline, in gallons

- G. At the end of the 24 hour period, HBPW personnel will collect the first set of bacteriological test samples.
- H. Immediately prior to sampling, the Contractor, at no cost to the HBPW, shall apply dust palliative to all exposed aggregate within the project limits.
- I. Samples shall be collected from a spigot located on the vertical portion of a standpipe assembly. Samples shall not be collected from fire hydrants.
- J. HBPW Sampling Procedure:
 - 1. Heat sampling point with propane torch and open the valve completely.
 - 2. Working towards the existing water system, open all necessary valves until the new water system is being fed by the existing water system. Open the valves appropriately to draw a sample of water from the new system. DO NOT sample water from the existing system.
 - 3. Collect a sample of water in a 10 mL vial and check the free chlorine concentration. A sample cannot be taken until the water contains less than 30 ppm free chlorine for at least 24 hours.
 - 4. Once water has run freely from each sampling point for at least 5 minutes, throttle the valve until there is a constant stream about the thickness of a pencil. Allow the water to run for 1 additional minute.
 - 5. Hold the sample bottle near the bottom with one hand and unscrew the cap with the other. DO NOT rinse out the powder in the sample bottle. DO NOT allow the interior of the cap to come into contact with anything other than the sample bottle.
 - 6. Hold the sample bottle under the stream of water and fill it above the 100 mL line to the base of the neck. DO NOT adjust the flow once you have started filling the sample bottle. DO NOT allow the sample bottle to overflow. After the sample bottle is filled to the correct level remove it from the flow, immediately replace the cap and secure it tightly.
 - 7. Throttle down the sampling point valve then reverse the opening order to close the remaining valves.
 - 8. Complete a sample form to include: date issued, project name, time and date of water sample collection, name of person collecting samples, test locations, disinfectant residuals for each outlet tested (ppm), bacteria test results for each outlet tested and certification that water conforms to bacterial standards. Using permanent marker, transcribe the 5-digit number from the sample form to the bottle cap.
 - 9. Deliver the sample(s) to the lab immediately. Samples will be cooled on ice pack in cooler after collection and until delivery to lab. No more than 2 hours may pass between the collection time and the delivery time.

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- K. At the discretion of the HBPW Water Treatment Plant, a third set of bacteriological test samples may be required 24 hours after the second set has been collected.
- L. In order to pass bacteriological testing, 2 or 3 consecutive samples, at least 24 hours apart, must display negative bacteriological results. Results from bacteriological testing will be available approximately 36 hours after the sample is taken.
- M. The HBPW reserves the right to recover all costs associated with additional flushing, sampling and testing. In addition to the assessment of liquidated damages for delays in construction resulting from failed bacteriological samples, failed samples will be billed to the Contractor at the rate of \$1,000.00 each failed testing cycle or \$273.00 each sample point tested during a failed sample, whichever is greater. At no cost to the owner, the Contractor may be required to perform pipeline pigging operations in the direction from bell to spigot.

3.10 UTILITY CONDUCTIVITY TESTING & ACCEPTANCE

- A. Testing and acceptance shall be performed solely by the BPW Water/Wastewater Services group.
- B. Prior to final paving the tracer wire shall be tested to ensure conductivity and continuity. The Contractor shall coordinate testing with the BPW upon completion of new water main installation. Any and all areas in which conductivity and/or continuity are compromised the Contractor, at no cost to the BPW, shall excavate, repair, and retest the tracer wire.
- C. Damage to the tracer wire of any utility shall be treated as damage to the utility itself. The Contractor shall inform the BPW of the damage immediately so that repairs may be witnessed, tested, and accepted.

3.11 TYING-IN WATER MAINS

- A. In-Service valves shall be operated only under the supervision of HBPW personnel.
- B. The contractor must schedule all water main tie-ins at least 72 hours in advance with HBPW personnel. As part of that notice, the Contractor shall indicate the amount of shutdown time required.
- C. Daytime shutdowns shall be limited to 0800 - 1500, Monday - Friday, excluding holidays.
- D. The HBPW reserves the right to recover all costs associated with a shutdown that exceeds the allotted time. Also, after the allotted time, the contractor shall reimburse the HBPW for damages at the rate of \$20.00 per minute.
- E. Upon receipt of satisfactory bacteriological results, the contractor shall connect the new water main to the existing water system under the inspection of the HBPW. The interiors of all pipes and fittings shall be swabbed with a 1% - 5% chlorine solution. Before backfilling, the system shall be brought to full pressure, air removed and the joints inspected for leaks.
- F. Mechanical joint restraints are required on all tie-ins.

END OF SECTION

THE CITY OF HOLLAND BOARD OF PUBLIC WORKS (HBPW)

SPECIFICATION FOR GALVANIZED STEEL SERVICE REPLACEMENT – 33 10 02

HBPW: MJG

1 OF 4

11/23/2021

PART 1 - DESCRIPTION

1.1 SUMMARY

- A. Section includes furnishing and installing pipe and accessories for galvanized steel service replacement outside the Right-Of-Way.

1.2 MISCELLANEOUS

- A. Witness Measurements: Record and provide actual location of service installation, including at a minimum, "L" measurements from curb stop and building penetration to building corners.
- B. Warranty: The contractor shall provide contact information to the customer for "first call" response during the warranty period. The contractor shall guarantee to the Owner that any work done shall be free from defects in material and workmanship for a period of one year from its completion.

PART 2 - MATERIALS

- 2.1 Provide materials and products for permanent incorporation into the work that were produced only in the contiguous United States. Foreign produced materials and products will not be accepted.

- A. Pipe
Services shall be seamless and manufactured in conformance with ASTM B88, type "K" copper with NSF 61 Certification. Minimum size used shall be 1" standard Copper Tubing Size (CTS). Services larger than 1" shall match existing unless otherwise approved. Materials other than K Copper may be used when approved by the HBPW.

Plumbing work in the interior of buildings shall use copper tubing for connection to all existing metal plumbing.

- B. Other
All materials used to restore any lawn, sidewalks, driveways, and landscaping disturbed by the construction of water services outside the public ROW shall also be in accordance with the project specifications and shall match the existing material being disturbed, or as Directed by the Engineer.

PART 3 - CONSTRUCTION

3.1 GENERAL

- A. The BPW will obtain a WATER SERVICE LINE REPLACEMENT AGREEMENT from the individual property owners for the water service construction outside the ROW, a copy of which will be available to the contractor. Prior to starting any work outside the ROW, the

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SPECIFICATION FOR GALVANIZED STEEL SERVICE REPLACEMENT – 33 10 02

HBPW: MJG

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- Contractor shall verify with the BPW that the appropriate agreement has been obtained from the property owner.
- B. Plumbing permits will be required for work performed inside and outside existing buildings. The Contractor shall secure all required permits and pay all associated fees. All plumbing work inside of a building shall be performed by a licensed plumber in possession of a valid permit. The Contractor will coordinate with the City plumbing inspector and water department. A list of names, addresses, and telephone numbers will be made available to Contractor.
 - C. Prior to construction of the proposed water service, the Contractor and licensed plumber shall coordinate with the BPW and the property owner to determine the location of the proposed service, to inspect the line as it enters the building and connects to the meter, to determine if a new meter setting or meter is required, and set a construction schedule.
 - D. Water Service Outside of the Right of Way - Where shown on the Drawings, the Contractor shall construct water services outside the public ROW and reconnect them to the new or existing copper water service at the curb stop. **The Contractor will schedule the work for the services such that at no time will connections from any new copper service piping be made to lead or galvanized services.** Place water services perpendicular the water main unless otherwise approved by the Engineers, and a minimum of 5 feet deep from finish grade.
 - E. Basement Penetration - Core drill 3-inch maximum hole for 1-inch or 1-1/2-inch copper service. Coordinate hole sized for copper services over 1-1/2-inch with Engineer. Hole to be minimum of 5 feet below exterior finished grade. If basement wall is nonexistent or cannot be drilled, the copper may be fed into the house through the basement floor with tunneling equipment. Seal exterior of wall and copper with AV-202 or HBPW approved equal. Seal void between hole in wall and copper with Fosrock, Preco Plug, or equal. Existing service lines may not be used for new connections, unless approved by BPW.
 - F. Directional Drilling and Restoration – Directional drilling or similar trenchless technologies shall be used for service installations unless otherwise approved. If open trench methods are approved, all restoration shall be considered incidental to the Water Service (Curb Box to Meter) pay item. Restore the Owner's property which may be disturbed by construction, and re-seed the grass areas on the property and restore the interior portions of the building on the property if it was disturbed by the work.
 - G. Electrical Grounding – If the existing service has a grounding clamp at the wall penetration the grounding clamp should be moved to the new copper service. If the ground wire is not long enough to be moved, notify the HBPW project representative for corrective measures.

Connection of New Service Line:

1. Connect new shut off valve, copper horn, and meter within 3 feet of basement wall, or as approved by the Engineer.

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SPECIFICATION
FOR
GALVANIZED STEEL SERVICE REPLACEMENT – 33 10 02

HBPW: MJG

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- 2. Continue copper to existing house plumbing, match existing size, 1 inch minimum. Connect to maximum pipe size of system. Provide all copper and fittings necessary to make connection.
3. Flush water system until water clears, check all new plumbing for leaks.
4. Restore temporary removals or damages to the lawn, driveway, or building.
5. Have homeowner sign a letter of acceptance of the Work, in a form approved by Engineer.
6. The contractor shall not connect proposed copper back to an existing galvanized service in the Right of Way.

PART 4 - PAY ITEMS

Measurement and Payment. The completed work as measured for the construction of water services outside the right of way will be paid for at the contract unit price for the following contract items (pay items):

Pay Item Pay Unit

- __" Water Service (Curb Box to Interior)..... each
__" Water Service (Curb Box to Interior), over 40 feet ft
Internal Plumbing, Water Service dollars

- A. "__" Water Service (Curb Box to Interior) up to 40 fteach
B. "__" Water Service (Curb Box to Interior), additional footageft
C. Internal Plumbing, Water Service

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**SPECIFICATION
FOR
GALVANIZED STEEL SERVICE REPLACEMENT – 33 10 02**

HBPW: MJG

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Specifications for Construction. Plumbing invoices must be itemized with time and materials provided. Costs that may exceed \$1,000 for internal plumbing modifications must be pre-approved by the BPW.

Any required plumbing permits will be obtained by the contractor or plumber. Permit fees will be reimbursed through the internal plumbing allowance.

END OF SECTION

THE CITY OF HOLLAND BOARD OF PUBLIC WORKS (HBPW)
SPECIFICATION
FOR
CURED-IN-PLACE PIPE LINER FOR WATERMAIN

SD/LEB

1 OF 4

09/04/2025

PART 1-DESCRIPTION

1.1 SUMMARY

- A. Section includes designing, furnishing and installing cured-in-place resin impregnated felt liner into an existing cast iron water main and fittings identified on the plans.
- B. Include video of the existing water main before and after lining.
- C. All cleaning, maintaining flow, bypass pumping, site preparation are to be included in this work.

1.2 MISCELLANEOUS

- A. Warranty: contractor shall guarantee to the Owner that any work done shall be free from defects in material and workmanship for a period of one year from its completion.

PART 2 - MATERIALS

2.1 Design the required cured-in-place liner as follows:

- Provide all documentation and calculations to the Engineer a minimum of 10 work days prior to installation.
- Wall thickness in accordance with Appendix X1 of *ASTM F1216-16*. Use the formulas assuming a fully deteriorated pipe condition and assume the water table is at the top surface of the pavement over the existing pipe.
- AWWA Class IV – fully structural since the host pipe has indeterminate structural strength
- Meet chemical resistance requirements in accordance with Appendix X2 of *ASTM F1216-16* including additives used in drinking water such as fluoride, chlorine, aluminum sulfate, phosphoric acid, etc.
- Existing pipe currently has a hydrant tee. Lining shall be able to be performed through the tee and continue to provide structural integrity past the host pipe service life.
- Modulus of soil reaction: 700 psi minimum.
- Design Factor of safety: 2.0, minimum.
- Live Load AASHTO HS20-44, loading under roadway.
- Soil Unit Weight: 120 pcf, minimum.
- System operating pressure of 70 psi.
- Wall color shall be a light color.
- A. Ensure the Tube meets the following:
 - Consists of one or more layers of flexible needled felt or equivalent woven or nonwoven material capable of carrying resin and withstanding installation pressures and curing temperatures.
 - Is compatible with the resin system used.

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- Material can stretch to fit irregular water main sections.
 - Outside layer of the tube is plastic-coated with a material that is compatible with the resin system used.
 - Fabricated to the required size to fit the inside diameter for the full length of the existing water main when cured.
 - Allowance is made for circumferential stretch during the hydrostatic inversion method and for longitudinal stretch during the direct pulled-in-place method.
- B. All materials shall meet City of Holland and Holland BPW Standards and Specifications for Water Main or as directed by the Engineer.
- C. All materials used to restore lawn, sidewalks, driveways, and landscaping disturbed by this construction shall also be in accordance with the project specifications and shall match the existing material being disturbed, or as directed by the Engineer.

PART 3 - CONSTRUCTION

3.1 GENERAL

- A. All Water Main involved in this work will be maintained, repaired and tested per Holland BPW Specification for Water Distribution Systems – 33 1000, included in this contract.
- B. NSF-61/ANSI-61 potable water certified and meets the following specifications:
- ASTM D638 -Tensile properties of plastics
 - ASTM D790 – Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
 - ASTM D903 -Peel or Stripping Strength of Adhesive Bonds
 - ASTM D2837 – Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products
 - ASTM D2992 – Obtaining Hydrostatic or Pressure Design Basis for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe and Fittings
 - ASTM D5813 - Cured-In-Place Thermosetting Resin Sewer Piping Systems
 - ASTM F1216 – Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube
 - ASTM F1743 – Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (GIPP)
 - ASTM F2019 – Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (GIPP)
 - ASTM F2994 – Utilization of Mobile, Automated Cured-In-Place Pipe (GIPP) Impregnation Systems
- C. Provide at least a 10 work day notice to the Engineer prior to starting the work. Electronically submit all required documentation to the Engineer for approval prior to starting the work. Do not begin work until approval is received from the Engineer.
- D. Video inspect the existing and lined pipe. Thoroughly clean the existing pipe prior to video inspection.

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- E. Dispose of all debris in accordance with subsection 205.03.P (surplus & unsuitable materials) of the MDOT Standard Specifications for Construction.
- F. Propose a corrective action to eliminate any obstruction revealed by the pre-installation inspection that cannot be removed by conventional pipe cleaning equipment and that prevents the cured-in-place liner from being installed properly. Ensure the proposed corrective action is approved by the Engineer prior to commencement of the work.
- G. Install the cured-in-place liner in accordance with the manufacturer's guidelines and per the ASTM Specifications listed above in 3.1.B. Ensure the finished liner is continuous over the entire length of pipe and is free from visual defects, such as foreign inclusions, dry spots, pinholes, lifts, and delamination. Wrinkles or other flaws in the cured liner that reduce the hydraulic capacity of the pipe are unacceptable. Correct any deficiency found at no cost to the contract, utilizing a method approved by the Engineer. Remove and dispose of all excess resin and other materials generated from the installation.
- H. For all types of resin and installation methods, capture and dispose of all process water and wastewater resulting from the installation and flushing of the cured-in-place liner. Ensure the captured water is disposed of at a local wastewater treatment facility or as otherwise approved by the Engineer in accordance with applicable federal, state, and local regulations and permit requirements. Provide written authorization to the Engineer for acceptance of this water from the local wastewater treatment facility prior to starting the work. Provide written confirmation to the Engineer from the disposal facility verifying the process water was disposed of properly. Ensure process water is not discharged directly or indirectly to a ditch, storm sewer, surface water body, or other unapproved location.
- I. Prepare and test samples for each lined run of pipe in accordance with *ASTM F1216*, section 8.1 or *ASTM F2019*, section 7.1, as applicable.
- J. Hydrant Tee shall be reconnected per City of Holland Standards and Specifications or as approved by Engineer.
- K. Testing pressure of 120 psi for 2 hours.
- L. Depth of cover: 5 feet.
- M. Provide a certification, sealed by a Professional Engineer licensed in the State of Michigan, verifying that the lining system has been designed, manufactured, and installed in accordance with the applicable *ASTM standards* and this special provision.

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PART 4 – MEASUREMENT AND PAYMENT

The completed work as measured for the construction of cured-in-place water main liner will be paid for at the contract unit price for the following contract item (pay item):

Pay Item	Unit
Cured-In-Place Pipe Lining, 12 Inch	Foot

Includes cleaning, debris disposal and video inspection necessary to line the existing water main as described.

This also includes furnishing and placing liner and any incidental work required for the proper placement of the liner. Includes all materials, labor, and equipment, required to excavate and reconnect the main. Includes all supervision, communications, meetings, performing all work in accordance with applicable OSHA/MIOSHA standards; moving and housing personnel, equipment and supplies to, at and from the project location; traffic control; permits; flow control (bypass pumping); restoration of unpaved areas to their pre-construction condition; replacement of any paved surfaces damaged by the contractor.

END OF SECTION

HOLLAND BOARD OF PUBLIC WORKS (HBPW)

SPECIFICATION FOR UTILITY LOCATING SYSTEMS – 33 00 01

HBPW: MJG

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PART 1 - DESCRIPTION

1.1 SUMMARY

- A. Section includes furnishing and installing wire, appurtenances and accessories for utility locating systems including.

1.2 MISCELLANEOUS

- A. Record and provide actual locations of locating wire access points and marker posts.
- B. Provide a record of wire continuity testing.

PART 2 - MATERIALS

2.1 TRACER WIRE & CONNECTIONS

- A. Tracer wire shall be a #10 AWG (0.1019" diameter) fully annealed, high carbon 1055 grade steel, high strength solid copper clad steel conductor (HS-CCS), insulated with a 30 mil, high-density, high molecular weight polyethylene (HDPE) insulation, and rated for direct burial use at 30 volts.
 - 1. Copperhead High Strength 1030 or approved equal.
- B. Splices shall be made using properly sized, waterproof connectors rated for underground service.
 - 1. 3M Direct Bury Splice Kit DBO/B6
- C. Grounding of tracer wire shall be achieved by using a 1.5-lb, drive-in, magnesium Ground Rod (ANO-12) with a minimum 20-feet, #12 red HDPE insulated copper-clad steel wire connected to the rod.
 - 1. Copperhead ANO-12 ground rod or approved equal.

2.2 TRACER WIRE ACCESS POINTS

- A. Water - Hydrants - All two-terminal tracer wire access points must include a manually interruptible conductive/connective link between the terminal for the tracer wire connection and the terminal for the ground rod wire connection.
 - 1. Copperhead Cobra Access Point T2-B-FLPKG or approved equal.
- B. Electric - All two-terminal tracer wire access points must include a manually interruptible conductive/connective link between the terminal for the tracer wire connection and the terminal for the ground rod wire connection.
 - 1. In non paved areas -Copperhead SnakePit Access Point LD14-R-2T-ADJ-SW or approved equal.
 - 2. In paved areas - Copperhead SnakePit Access Point CD14-R-2T-ADJ-SW

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- C. Fiber - All two-terminal tracer wire access points must include a manually interruptible conductive/connective link between the terminal for the tracer wire connection and the terminal for the ground rod wire connection.
 - 1. In non paved areas -Copperhead SnakePit Access Point LD14-O-2T-ADJ-SW or approved equal.
 - 2. In paved areas - Copperhead SnakePit Access Point CD14-O-2T-ADJ-SW

2.3 UTILITY MARKER POSTS

- A. Marker posts shall be 72-inch Rhino Tri-View Marker Posts with 2 external terminals, color coded in accordance with PA 174 of 2013, as amended. Caps shall be black in color. The BPW will supply decals for the marker posts. When necessary, locations and types of marker posts to be used will be determined by the BPW. Colors should match MissDig utility color coding.
 - 1. Water shall be blue
 - 2. Electric shall be red
 - 3. Fiber shall be Orange.

PART 3 - CONSTRUCTION

3.1 TRACER WIRE & CONNECTION POINTS

- A. Tracer wire and marker posts shall be installed directly on top of the respective utility. In no case shall a discrepancy of more than 6-inches exist between the utility and the tracer wire, unless approved by the BPW.
- B. Marker posts shall be installed per the manufacturer's instructions for direct bury installation. The tracer wire shall be connected to the external terminals. The external terminals shall be configured such that only the brass nuts and washers are visible from the outside of the post.
- C. In the event the utility is located entirely under a paved surface the marker post shall be installed in the nearest unpaved right of way/easement a minimum of 12-inches from the edge of pavement.
- D. Marker posts shall be installed plumb with a clear line of sight to all surrounding posts. In no case shall tracer wire be installed on the outside of a marker post.
- E. Tracer wire shall be installed with 10-feet of slack on either side of all connection points.
- F. Tracer wires of parallel utilities shall not remain in contact.
- G. Ground rods shall be placed at each dead end or tie-in and at each utility access point.
- H. Water tracer wire access points shall be attached to the north nut of the flange between the barrel and standpipe.
- I. Electric ground mount tracer wire access points shall be installed within 1 foot of the northwest corner of the cabinet foundation.
- J. Fiber ground mount tracer wire access points shall be installed within 1 foot of the northwest corner of the fiber hand hole or pedestal.

HOLLAND BOARD OF PUBLIC WORKS (HBPW)

SPECIFICATION FOR UTILITY LOCATING SYSTEMS – 33 00 01

HBPW: MJG

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3.2 UTILITY CONDUCTIVITY TESTING & ACCEPTANCE

- A. Testing and acceptance shall be performed solely by the BPW Water/Wastewater Services group.
- B. Prior to final acceptance the tracer wire shall be tested to ensure conductivity and continuity. The Contractor shall coordinate testing with the BPW upon completion of new utility installation. Any and all areas in which conductivity and/or continuity are compromised the Contractor, at no cost to the BPW, shall excavate, repair, and retest the tracer wire.
- C. Damage to the tracer wire of any utility shall be treated as damage to the utility itself. The Contractor shall inform the BPW of the damage immediately so that repairs may be witnessed, tested, and accepted.

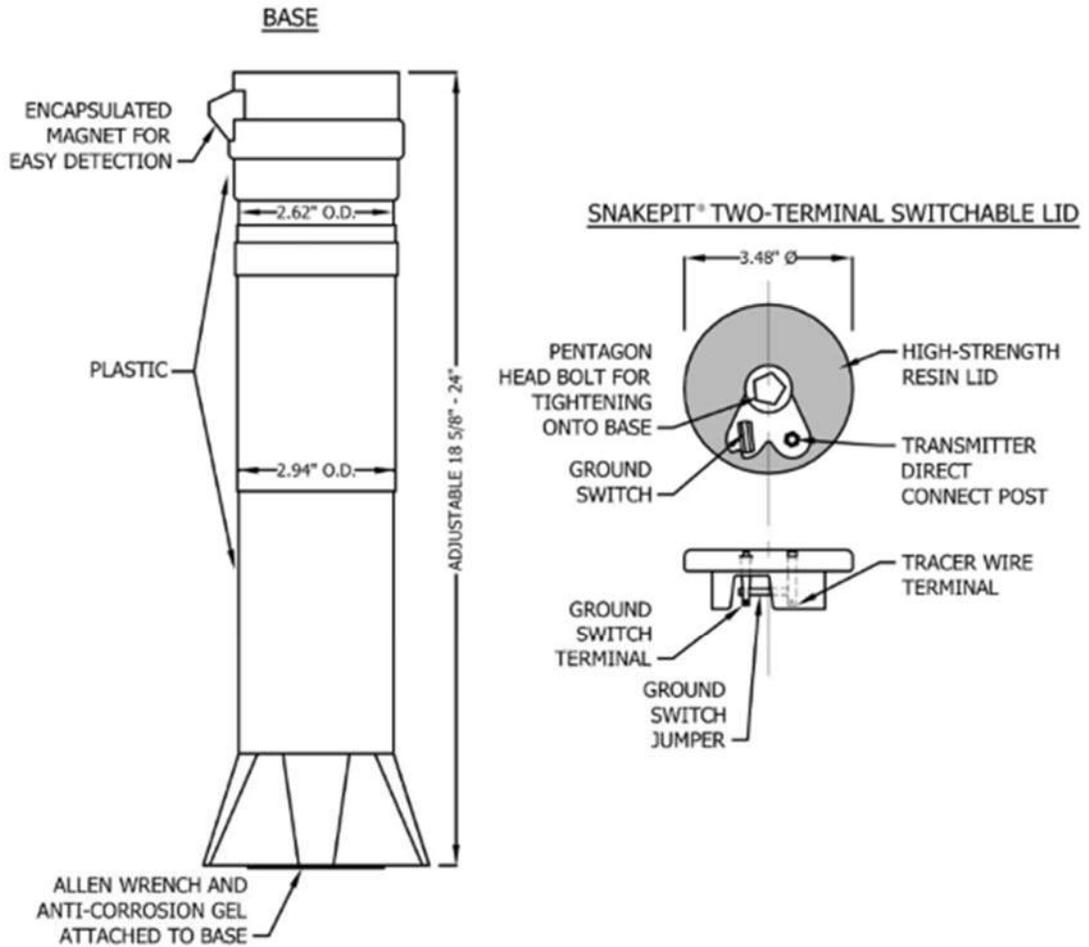
HOLLAND BOARD OF PUBLIC WORKS (HBPW)

SPECIFICATION FOR UTILITY LOCATING SYSTEMS – 33 00 01

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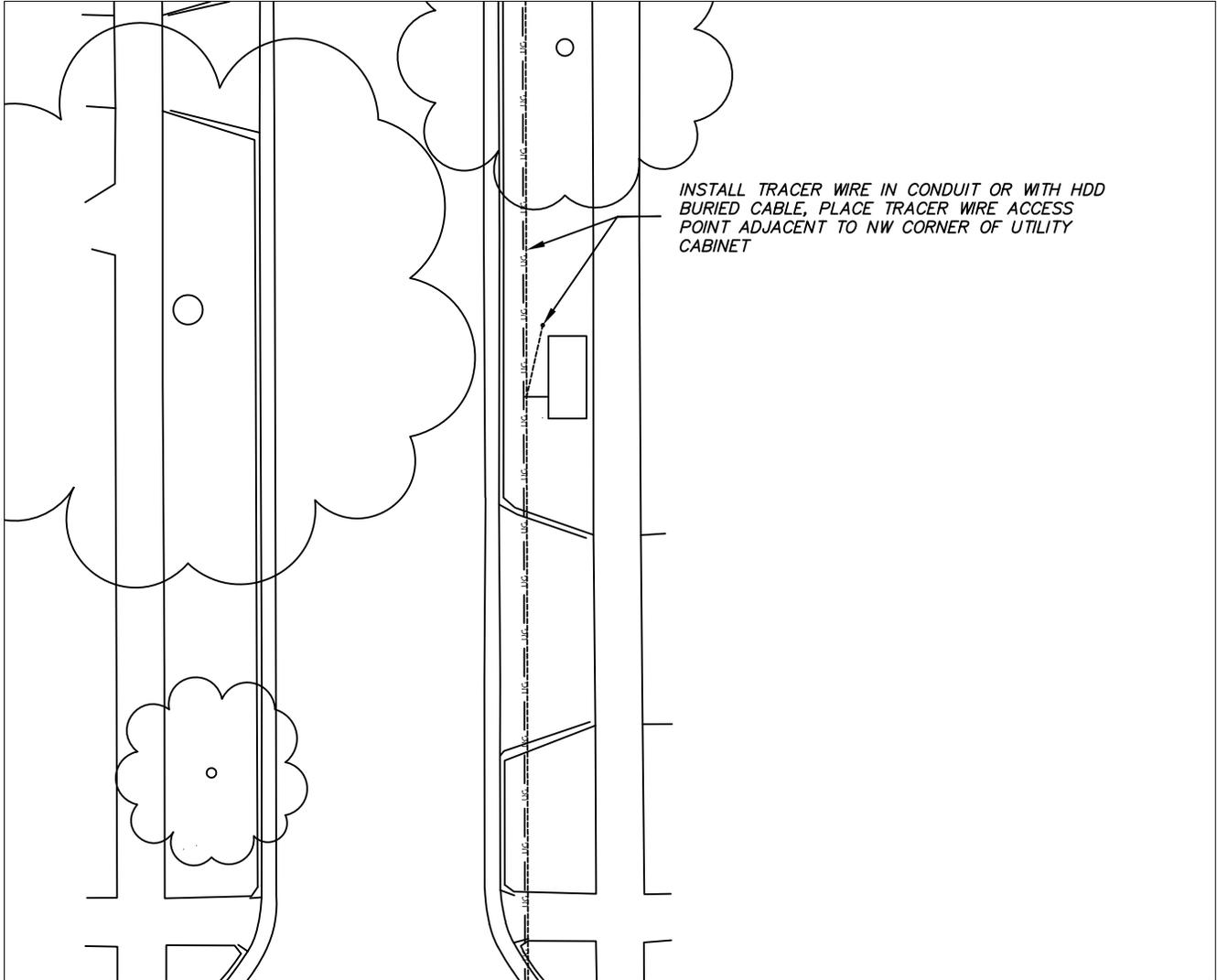
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APWA UNIFORM COLOR CODE	
■	ELECTRIC
■	GAS
■	COMMUNICATION
■	POTABLE WATER
■	SEWER
■	RECLAIMED WATER

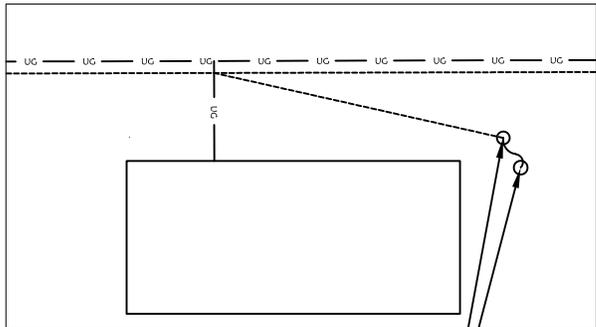
END OF SECTION



INSTALL TRACER WIRE IN CONDUIT OR WITH HDD BURIED CABLE, PLACE TRACER WIRE ACCESS POINT ADJACENT TO NW CORNER OF UTILITY CABINET

GENERAL NOTES:

1. COORDINATE CONDUCTIVITY TESTING WITH HBPW STAFF PRIOR TO FINAL ACCEPTANCE
2. COMPLETE UNDERGROUND SPLICE WITH HBPW APPROVED WIRE CONNECTORS.



PLACE ACCESS POINT WITHIN 1 FT OF THE NW CORNER

DRIVE GROUND ROD ADJACENT TO ACCESS POINT WITH MINIMUM 2 FEET OF COVER TO TOP OF ROD



CITY OF HOLLAND, MICHIGAN

Holland Board of Public Works

Utility Services Department
 625 Hastings Ave., Holland, MI 49423
 Phone: (616) 355-1643
 Director: John Van Uffelen, P.E.

**TRACER WIRE
 STANDARD DETAIL**

DRAWN BY MJG	SCALE NONE	DATE 7/12/2021
APPROVED BY PB	SHEET	DWG FILE GALVANIZED SERVICE.dwg

HOLLAND BOARD OF PUBLIC WORKS (HBPW)
SPECIFICATION
FOR
SANITARY SEWER COLLECTION SYSTEMS – 33 30 00

HBPW:BSR

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PART 1 - DESCRIPTION

1.1 SUMMARY

- A. Section includes furnishing and installing pipe, appurtenances and accessories for gravity sanitary sewer collection systems including bypass pumping, pressure testing, CCTV inspection, the removal / abandonment of pipe, manholes and appurtenances. All work shall conform to the MDOT 2020 Standard Specifications for Construction as modified by the HBPW. Non-itemized work will not be paid for separately.

1.2 MISCELLANEOUS

- A. Record and provide actual locations of mains, wye connections from downstream structure, structure locations, structure rim and invert elevations (to USGS datum) and cut depth of lateral riser. Identify, describe, record and provide unexpected subsoil conditions and uncharted utilities.
- B. Indicate special construction methods required.

PART 2 - MATERIALS

2.1 PIPE

- A. Sanitary Sewer Main shall conform to ASTM F679 PS-115 or ANSI/ASTM D3034 SDR 26 Poly/Vinyl Chloride (PVC) material; bell and spigot style joints with elastomeric seal in accordance with ASTM D3212.
- B. Sanitary Sewer Laterals shall conform to ASTM D3034 SDR 26 and shall be push-on type with premium rubber gasket.

2.2 ACCESSORIES

- A. In-line fittings shall be same material as pipe. Saddle fittings will not be permitted for new pipeline construction.
- B. Connections to existing sewers shall be made using solid couplings. Fernco Strong Back RC Series Repair Couplings may be used at the discretion of the HBPW.
- C. Taps into existing sewers shall be Romac Style CB Saddle or HBPW approved equal.

2.3 STRUCTURES AND CASTINGS

- A. Structures
1. Pre-cast, leak-tight units in accordance with ASTM C478 revised to include 5" wall thickness, depth as indicated,
 2. All precast structures shall have Xypex Bio-San C500 added to the concrete of the individual structures

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3. Cylindrical, 48" minimum clear inside diameter concentric shaft with integrally cast base,
4. Eccentric cone with minimum 32" height, concentric corbel is optional,
5. External bituminous coating,
6. Lipped male/female joints with synthetic gaskets according to ASTM C923,
7. Sleeved to receive pipe sections as required,
8. Constructed without steps,
9. Pipe Entrance Joints shall be flexible core and seal boot, Press-Seal Gasket Corporation PSX or HBPW approved equal.

B. Covers and Frames

1. Conform to ASTM A48 Class 35B gray iron construction tar emulsion coated,
2. Provide for a minimum clear opening of 24",
3. Watertight gasketed seal, 4. Covers:
 - a. EJ 1040 AGS or HBPW approved equal,
 - b. "SANITARY SEWER" cast into the top surface in 2" raised letters,
 - c. Heavy-duty traffic rated with epic pick slot,
 - d. OFF-ROAD EJ 1040APTGS or HBPW approved equal per MDEQ requirements. Pressure-tight, 4 hex-head ½" stainless steel watertight bolts & washers.
5. Frames
 - a. EJ 1045Z or HBPW approved equal. Low profile frames (EJ 1046Z) may only be used at the discretion of the HBPW.

C. Adjustment Rings

1. Height shall equal the distance between the bottom of the frame and the top of the cone section of the structure,
2. Inside diameter shall not be less than 24",
3. Outside diameter shall not be less than the outside diameter of the base flange of the structure frame,
4. Contain no less than ½" and no more than 3" of rubber composite adjustment riser (EJ Infra-Riser or HBPW and City of Holland approved equal) installed per manufacturer's recommendations, installed immediately below frame,
5. Additional rings shall be pre-cast concrete with 2 strands of radial steel,
6. Wherever possible, pre-cast concrete material shall be separated from iron material and other pre-cast concrete material by rubber composite adjustment risers.

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7. Maximum adjustment height of all rings to be 18", measured from bottom of frame to top of precast cone.
8. Maximum of 3 precast adjustment rings allowed.
9. Adjustment rings and frame ring to be backfilled with concrete, min 3,500 psi, from precast top to bottom of HMA base course.
10. Sealant between adjacent adjusting rings and casting shall be AV-202 available at Grand Valley Concrete.

2.4 SUBMITTALS

- A. Provide product data on all materials, appurtenances and accessories.
- B. Provide written verifiable proof that all sewer pipe used has been manufactured by an entity with at least 5 years of experience in producing the product.
- C. Submit 2 copies of product ASTM certification.

2.5 MISCELLANEOUS

- A. Abandon mains and structures using "Flowable Fill" (lean concrete).
- B. Mortars shall comply with MDOT Specifications. Also, no mortar mixed for more than 30 minutes shall be used. When outside temperature is equal to or less than 32 degrees F, no mortar shall be mixed without first heating the sand and water.

PART 3 - CONSTRUCTION

3.1 GENERAL

- A. Bypass Pumping
 1. Bypass pumping shall not be paid for separately. Where existing sewage flows cannot be maintained through the existing piping system, the Contractor shall bypass all sewage around the section or sections of sewer to be reconstructed,
 2. Bypass pumping shall be accomplished by temporarily plugging an existing upstream structure and pumping the sewage into a downstream structure or separate system beyond the limits of the construction activity. The pump and bypass line shall be of adequate size to accommodate the flow, even in wet weather conditions,
 3. The Contractor shall either:
 - a. Temporarily reconnect the sewer at the end of each work day **(PREFERRED)**, or
 - b. Provide a redundant pumping system including, but not limited to, a second pump capable of handling the flow at the upstream structure. The

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Contractor shall continuously monitor the level of sewage in the upstream structure and replace or reinforce the pump if it is not meeting demand.

3.2 PIPE

- A. All removal work shall be scheduled to maintain service,
- B. Install pipe, fittings, and accessories in accordance with MDOT specifications and manufacturer's instructions. Seal joints watertight,
- C. Minimum pipe sections shall be no less than 8',
- D. No deflection may be achieved at the joints. Pipe may be deflected by longitudinal bending only in accordance with *Table 1*,
- E. Lay pipe to indicated gradients with maximum variation of 1/64" in 10',
- F. Excavation around existing structures shall extend around entire perimeter to minimize excavation differential to 6',
- G. Pipe shall be installed at slopes in accordance with the most recent edition of the Recommended Standards for Wastewater Facilities (Ten States Standards), H. Building Connections
 - 1. Building lead risers shall be installed at a nominal depth of 10' unless otherwise authorized by the HBPW. All risers installed without building leads shall include a HBPW approved plug,
 - 2. Building leads shall terminate (with approved plug) at the property line or easement line, unless otherwise noted, at a nominal depth of 10',
 - 3. Risers and/or building leads shall be marked with 2"x2"x12' hardwood markers, placed vertically at the end of the pipe, painted a fluorescent color and 2'x3/8" diameter rebar placed 1' below grade,
 - 4. Without exception, wye must be aligned with the flow in the sewer main.
 - 5. All homes with municipal wastewater service must be reconnected to the wastewater main regardless of indication on plans.
 - 6. Laterals connecting to mains 18 inches in diameter and larger shall have a backflow prevention device installed at the ROW line.
- I. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress. If any portion of the new pipe is damaged, the pipe shall be replaced back to the nearest upstream structure unless otherwise directed by the engineer.

3.3 STRUCTURES

- A. Existing steps shall be cut flush to the inside structure wall and patched with mortar, or coat the exposed steel with mastic.
- B. Lift holes shall be filled with mortar,
- C. Seal joints with external frame & joint seal,

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- D. Place ready mix concrete collar (3,500 psi min) a minimum of 6" thick around entire circumference of structure. Collar shall extend from the bottom of the base course of HMA to a minimum of 6" below the bottom of the last adjustment ring,
- E. Bench and Channel
1. Structures with elevated inverts shall have bench ramped approximately 6" in height to prevent splashing erosion,
 2. Channels shall be constructed to create the least amount of turbulence. Any portion of the existing structure that will interfere with such construction shall be removed,
 3. Concrete channels formed inside precast flexible joint structures shall be placed so as not to interfere with the flexibility of the joint. The channel shall be constructed the same size as the inside diameter of the existing pipe,
 4. At no time is any of the material used for constructing the bench and channel to enter the pipe. If construction material should enter the sewer, it is to be removed immediately and not allowed to continue down the sewer,
 5. Pipe shall not extend into a structure beyond the inside face of the structure wall as measured at the springline of the pipe. Field cutting of pipe to be used at structures shall be performed in a neat and workmanlike manner. Exposed ends of reinforcing steel shall be cut flush with the pipe end.
- F. Structure frame adjustment
1. Total height of adjustment rings may not exceed 18",
 2. Two beads of AV-202 sealant shall be placed between the precast structure and adjusting rings, between all individual adjusting rings, and between the final adjusting ring and the iron frame.
 3. All surface structures outside paved areas shall be set to the plan elevation of 0.20' above the adjacent ground.

3.4 SANITARY MANHOLE ABANDONMENT

- A. Manhole Abandonment (Live or CIPP Lined)
1. Contractor shall sawcut, and excavate an area no greater than 7'x7' and make ready the manhole for abandonment by removing any standing water present in manhole by whatever means necessary, place filter fabric over the pipe in the bottom of the manhole, pour 3500 psi concrete collar to a depth of 6-inches above the top of the pipe, and backfill with Class II sand compacted to 95% of maximum density.

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2. When abandoning live manholes Contractor shall place PVC SDR 26 pipe matching the diameter of the mainline sewer pipe over the entire length of the flow channel.
3. Existing sanitary manholes to be abandoned in accordance with MDOT 2020 Standard Specifications for Construction, Section 203.03A
4. Contractor shall remove existing lids and castings and deliver them to the HBPW Service Center for disposal.
5. Contractor shall remove and dispose of all concrete from the manhole abandoning process.

3.5 SANITARY SEWER MAIN TESTING AND CCTV INSPECTION

A. Air Testing Method Procedures

1. The section of sewer to be tested shall have been trench backfilled and cleared. Pneumatic plugs (having a sealing length equal to or greater than the diameter of the pipe to be tested) placed in both ends of the pipe to be tested shall be inflated to 25 psi. The sealed sewer pipe shall then be pressurized to
 - a. $4.5 \text{ psi} + \text{the average height, in feet, of the water table over the sewer pipe} \times 0.433$ and allowed to stabilize for at least 2 minutes.
2. After the stabilization period, the line shall be pressurized to
 - a. $3.5 \text{ psi} + \text{the average height, in feet, of the water table over the sewer pipe} \times 0.433$ and the time, in minutes, for pressure to drop 0.5 psi is measured.
3. Air testing techniques shall be in accordance with the latest ASTM standard practice for testing sewer lines by low-pressure air test method for the appropriate pipe material,
4. Air leakage test results shall not be less than the time per inch of pipe diameter per length of sewer pipe as specified in Table 2 of UNI-B-6-98.

B. Deflection Testing for Flexible Thermoplastic Pipes:

1. The pipeline shall be tested for excess deflecting by pulling a “go/no go” mandrel through the pipe from structure to structure. The mandrel shall be sized in accordance with article 4, below, and as specified in the Special Provisions. A

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- “deflectometer” may also be used to check the record deflection. Test shall not occur sooner than 30 days after installation,
2. Wherever possible and practical, the testing shall initiate at the downstream lines and proceed toward the upstream lines,
 3. Where deflection is found to be in excess of Allowable Testing Limits, the Contractor shall excavate to the point of excess deflection and carefully compact around the point where excess deflection was found. The line shall then be retested for deflection. However, should after the initial testing the deflected pipe fail to return to the original inside diameter size, the line shall be replaced back to the upstream structure,
 4. Deflection Limits for Thermoplastic Pipes (*See also Table 1*):

- a. Deflection of Polyvinyl Chloride (PVC) pipe shall not exceed five percent (5%) of the “Base ID” (Internal Diameter) of the pipe. “Base ID” shall be calculated in accordance with the following:

$$\text{Average ID} = \text{Average OD} - 2(1.06)t$$
$$\text{Tolerance Package} = (A^2 + B^2 + B^2 + C^2)^{1/2}$$

Where:

A=OD Tolerance (ASTM D3034)

B=Excess Wall Thickness Tolerance = 0.06t

C=Out-of-Roundness Tolerance = 0.015(Average OD)

T=Minimum Wall Thickness (ASTM D3034)

5. The mandrel shall be hand pulled by the Contractor through the sewer lines and witnessed by HBPW Personnel. Schedule testing with HBPW personnel a minimum of 72 hours in advance,
 6. Any sections of the sewer not passing the mandrel test shall be uncovered and the pipe replaced as necessary. The Contractor shall, at no charge, replace and compact the backfill material to the satisfaction of the HBPW,
 7. The repaired section shall be retested with the go/no-go mandrel until it meets HBPW standards and specifications.
- C. Post-Construction Closed-Circuit Television (CCTV) Inspection:
1. The Contractor shall be responsible for coordinating and conducting all CCTV inspections of the public sanitary sewer lines installed during the project,
 2. The Contractor shall make ready the sewer for CCTV by jetting the pipe and vacuuming all sand and debris. Inspection may not occur during curb, ADA ramp or HMA placement,

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3. The Contractor shall provide documentation showing the software to be used for the inspection is both National Association of Sewer Services Companies (NASSCO) and PACP certified and that the operator(s) certification conducting the inspection is current and up-to-date,
4. CCTV shall be completed and the system approved by the HBPW, Utility Owner or Representative before any permanent structures or HMA is placed within 15' of the installed sewers,
5. CCTV shall only be performed in the presence of the Contractor, the HBPW, Utility Owner or Representative. One copy of the CCTV reports and video will be turned over to each of the above parties.
6. The Contractor shall bear the cost of post construction CCTV. HBPW reserves the right to recover all costs associated with additional CCTV if inadequate post construction CCTV is provided.
7. The CCTV reports and video will be used by the HBPW, Utility Owner or Representative to evaluate the pipe for conformance with these specifications. Any non-conformance noted by the HBPW, Utility Owner or Representative shall be corrected and new reports and video generated, all at the Contractor's expense.
8. The digital video files shall be recorded in MP4 file format by a certified PACP operator and in ITpipes or the CCTV contractor shall provide the method by which to upload the PACP inspection into HBPW ITpipes program using PACP database format. All CCTV inspections shall include the standard PACP mandatory fields. In addition, the following fields shall also be included in the inspection report based on PACP version 7.
 - a. Field 11 – Project (number)
 - b. Field 41 – Lining Method
 - c. Field 31 – Pipe Segment Reference (number)
 - d. Field 34 – Location Code
 - e. Field 43 – Pipe Joint Lengths
 - f. Field 44 – Total Length
 - g. Field 45 – Length Surveyed
 - h. Field 49 – Upstream Rim to Invert
 - i. Field 56 – Downstream Rim to Invert
 - j. Field 65 – Additional Info (Condition Rating and Inspector)

HOLLAND BOARD OF PUBLIC WORKS (HBPW)

SPECIFICATION FOR SANITARY SEWER COLLECTION SYSTEMS – 33 30 00

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HBPW reserves the right to recover all costs associated with additional CCTV if inadequate CCTV is provided.

TABLE 1: PERMISSIBLE DEFLECTIONS IN PUSH-ON JOINT PVC PIPE

Size (in)	Approximate Radius of Curve Produced by Bending of Pipe (ft.)	Approximate Deflection Produced by Longitudinal Bending of Pipe (in)	
		14'	20'
	All Lengths		
8	200	5	12
10	250	4	9
12	300	3	8

END OF SECTION

THE CITY OF HOLLAND BOARD OF PUBLIC WORKS (HBPW)
SPECIFICATION
FOR
SANITARY SEWER CCTV & MANHOLE INSPECTION – 33 30 10

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PART 1 - DESCRIPTION

1.1 SUMMARY

- A. Section includes furnishing all equipment and materials necessary to clean, perform CCTV inspection and rate the condition of the sanitary sewer system consistent with current National Association of Sewer Services (NASSCO) and Pipeline Assessment Certification Program (PACP) Standards. Additionally, this section includes manhole inspection and the condition assessment of sanitary sewer manholes consistent with current National Association of Sewer Services (NASSCO) and Manhole Assessment Certification Program (MACP) Standards.

PART 2 - MATERIALS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

- A. Bypass Pumping
1. Bypass pumping shall not be paid for separately. Where existing sewage flows cannot be maintained through the existing piping system, the Contractor shall bypass all sewage around the section or sections of sewer to be televised.
 2. Flow levels within the existing sewers to be inspected shall not exceed 20 percent (measured from bottom of camera). If the water level does exceed 20 percent the contractor shall attempt to draw the water level down using high-pressure water jetting equipment. If this method does not bring the water level below 20 percent, then the contractor shall request approval from BPW to set up bypass pumping. Bypass pumping is accomplished by temporarily plugging an existing upstream structure and pumping the sewage into a downstream structure or separate system beyond the limits of the proposed televised sewer. The pump and bypass line shall be of adequate size to accommodate the flow, even in wet weather conditions. Work can be scheduled 24 hours a day to inspect during minimum flows at BPW approval of schedule.
 3. The Contractor shall either:
 - a. Temporarily restore the sewer to normal flows at the end of each work day **(PREFERRED)**, or
 - b. Provide a redundant pumping system including, but not limited to, a second pump capable of handling the flow at the upstream structure. The Contractor shall continuously monitor the level of sewage in the upstream structure and replace or reinforce the pump if it is not meeting demand.

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B. Traffic Control

1. Traffic control shall not be paid for separately. Whenever a lane of traffic is impeded more than 4 hours, a traffic control plan shall be submitted by the Contractor to the City Engineer Brian White b.white@cityofholland.com , County Road Engineer and MDOT as needed at least two weeks prior to the date of inspection for approval. A copy of the approved plans shall be submitted to HBPW which will be placed in the project file. All Traffic Control shall conform to the latest Michigan Manual of Uniform Traffic Control Devices (MMUTCD),
2. If needed the Contractor shall be responsible for obtaining a Traffic Control Order from the City of Holland Transportation Department. Any coordinating or cost associated with traffic control shall be the responsibility of the Contractor.

3.2 SANITARY SEWER MAIN CCTV INSPECTION

A. Closed-Circuit Television (CCTV) Inspection:

1. The Contractor shall be responsible for coordinating and conducting all CCTV inspections of the public sanitary sewers identified for work,
2. The Contractor shall make ready the sewer for CCTV by water jetting the pipe and vacuuming all sand and debris,
3. The Contractor shall provide documentation showing the software to be used for the inspection is both National Association of Sewer Services Companies (NASSCO) and PACP certified and that the operator(s) certification conducting the CCTV inspection is current and up-to-date,
4. A copy of the CCTV reports and video shall be submitted to HBPW within 24 hours of the completion of each segment of sewer,
5. The Contractor shall be responsible for condition rating of each segment of sanitary sewer pipe in accordance with the most current PACP Standards,
6. The digital video files shall be recorded in MP4 file format by a certified PACP operator and in ITpipes or the CCTV contractor shall provide the method by which to upload the PACP inspection into HBPW ITpipes program using PACP database format. All CCTV inspections shall include the standard PACP mandatory fields. In addition, the following fields shall also be included in the inspection report based on PACP version 7.

Version 7

- a. Field 11 – Project (number)
- b. Field 41 – Lining Method

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- c. Field 31 – Pipe Segment Reference (number)
 - d. Field 34 – Location Code
 - e. Field 43 – Pipe Joint Lengths
 - f. Field 44 – Total Length
 - g. Field 45 – Length Surveyed
 - h. Field 49 – Upstream Rim to Invert
 - i. Field 56 – Downstream Rim to Invert
 - j. Field 65 – Additional Info (Condition Rating and Inspector)
- B. Sewer Main Impediments:
- 1. Any obstructions in the pipe that prevents proper CCTV inspection from being completed shall be reported immediately to the HBPW, Utility Owner or Representative,
 - 2. If any obstructions are removed by equipment other than standard jetting nozzles, then additional compensation may be considered. This can only be done at the direction of the HBPW, Utility Owner or Representative prior to the proceeding.
- C. HBPW reserves the right to recover all costs associated with additional CCTV if inadequate CCTV is provided.
- D. Light Cleaning of Mains:
- 1. Light cleaning will be considered incidental to the cost of the CCTV inspection. The Contractor shall clean and CCTV all sanitary sewers identified by HBPW.
 - 2. The Contractor shall provide all equipment necessary for the proper flushing, cutting service leads, and dewatering of the sewers prior to the CCTV inspection.
 - 3. Where it has been determined through a visual inspection that only small deposits of debris exist within the sewer line, then light-cleaning methods can be used to remove these deposits. Equipment such as high-pressure water jetting equipment will be permitted.
 - 4. Necessary pulleys and supports shall be installed in manholes so as not to restrict the cleaning operation or damage existing manholes.
 - 5. All dirt, debris, roots and other material removed from the sewers shall be loaded and hauled away by the Contractor. The Contractor is responsible for disposal of all debris removed from the sewer and shall be considered incidental to cleaning.

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6. Dewatering shall include necessary pumping equipment, plugs and temporary piping between manhole sections.
7. Due to the fragile nature of some areas of the pipe sections that have begun to collapse, extreme care and caution shall be exercised while cleaning these areas. The Contractor shall take the proper precautions to avoid damage or sewer backups. If the Contractor believes cleaning activities may cause further damage or sewer backups, they shall notify HBPW prior to proceeding.
8. In no case shall high-pressure water jetting exceed **1,200** psi.
9. Hydrants shall not be connected to without the use of an approved backflow prevention device. An approved backflow device is available for rent from the HBPW. The Contractor may use their own certified backflow device upon approval by HBPW and a copy of the certification shall be provided to HBPW prior to using the device. If Contractor does choose to use their own backflow device, **Contractor must rent a hydrant meter from HBPW** for internal water consumption tracking. The Contractor will not be charged for the water used. All hydrant usage must be documented by the Owner. The Contractor must use only those hydrants as identified by the owner. If operations take place between November 1 and April 1, the Contractor shall fill with water from the HBPW Service Center.

E. HEAVY CLEANING/ROOT REMOVAL

1. Roots shall be removed in the designated sections where root intrusion is a problem. Special attention should be used during the cleaning operation to assure removal of roots from the joints.
2. The cleaning operation shall result in a smooth and reasonably regular section of the sewer pipe having at least 90% of its original cross section area, or other degree of tolerance acceptable to the HBPW. The HBPW shall approve all heavy cleaning before proceeding. The Contractor is responsible for disposal of all debris removed from the sewer and shall be considered incidental to cleaning. During all sewer-cleaning operations, satisfactory precautions shall be taken in the use of cleaning equipment. When hydraulically propelled cleaning tools (which depend upon water pressure to provide their cleaning force) or tools which retard the flow in the sewer line are used, precautions shall be taken to insure that the water pressure created does not damage or cause flooding of public or private property being served by the sewer. No fire hydrant shall be obstructed in case of a fire in the area served by the hydrant.

3.3 SANITARY MANHOLE INSPECTION

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A. Manhole Inspection Process:

1. The manhole inspections will be completed using the ESRI Collector application for iOS or Android devices. Holland BPW has created an inspection form that is editable in the Collector app. The Contractor shall coordinate with HBPW to receive access to the BPW's ArcGIS Online account through the Collector app.
 - a. The Contractor must have a smartphone or tablet with the Collector application. With access to the HBPW online account, the contractor shall be able to perform the manhole inspections within the application,
2. The Contractor shall be responsible for coordinating and conducting all Manhole inspections of the public sanitary manholes identified for work,
 - a. The contractor shall take photos of the manhole surface as follows:
 - 1) Manhole frame and cover.
 - 2) Manhole wall.
 - 3) Bench and channel.
 - 4) Any and all defects within the manhole structure.
 - a) Defects shall be notated with the component and clock position identified (ex: 6 o'clock – longitudinal crack in manhole wall).
3. The Contractor shall provide documentation showing that the operator(s) certification conducting the Manhole inspection is current and up-to-date,

PART 4 - MEASUREMENT AND PAYMENT

- | | | |
|-----------|--|-------------------------------|
| A. | Sanitary Main, CCTV Inspection | Size of Main/Linear Foot (LF) |
| 1. | Measurement shall be based on the surface distance as measured from center of manhole cover to center of manhole cover. Payment shall be made upon satisfactory transition of files to HBPW Granite Net program. | |
| B. | Heavy Cleaning/Root Removal | Hour (HR) |
| 1. | Only if approved by the HBPW, Utility Owner or Representative prior to the process. Amount of time taken to perform heavy cleaning/root removal (as described above) shall be paid for on a per hour basis. Payment method shall be as referenced above. | |
| C. | Protrusion Removals | Each (EA) |
| 1. | Only if approved by the HBPW, Utility Owner or Representative prior to the process. | |

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- D. Sanitary Manhole Inspection Each (EA)
1. Payment shall be made upon satisfactory inspection reports and photographs.

END OF SECTION

THE CITY OF HOLLAND BOARD OF PUBLIC WORKS (HBPW)

MEASUREMENT AND PAYMENT – 33 90 00

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1.1 GENERAL ITEMS

A. **Vertical Exploration** **Each**

1. Vertical Exploration will be paid for by the unit, as directed by the Engineer, where exploratory excavation is required to determine utility connection points or other underground features. This work shall include all equipment, labor, and materials necessary to excavate and replace the soil within the excavation area.

1.2 WATER MAIN ITEMS

A. **Water Main, DI, _inch, Tr Det_, Modified** **Foot**

1. This work shall conform to the 2020 MDOT Standard Specifications for Construction except as follows:
 - A. Fittings shall be paid for separately, while Water Main will be measured from center to center of fittings.
 - B. Polyethylene Encasement shall be included and will not be paid for separately;
 - C. The Contractor does not have the option to use live taps to expedite connecting to an existing water main unless specifically noted.
 - D. Tracer wire installation, installation of bronze wedges, all connections points (excluding marker posts), and all related work shall be included in the cost of the Water Main pipe.

B. **Bend, _ degree, _ inch** **Each**
Cross, _ inch by _ inch by _ inch by _ inch **Each**
Plug, _ inch **Each**
Reducer, _ inch by _ inch **Each**
Tee, _ inch by _ inch **Each**
Sleeve, _ inch **Each**

1. The Engineer will count each fitting of the sizes, deflections and number required. The unit price for each type of fitting includes the cost of the work included in **Water Main, DI, _ inch, Tr Det_, Modified**.

C. **Fire Hydrant, Modified** **Each**

1. This work shall conform to the 2020 MDOT Standard Specifications for Construction except as follows:
 - A. The unit price for Fire Hydrant, Modified includes the cost of providing and installing the hydrant, including 21AA gravel for backfill, and 12" x 12" x 6" block at the locations shown on the plans in a ready to use condition.

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- D. Water Service, ___ inch, Short Each**
1. Water Service, ___ inch, Short will be paid for by the unit installed on the short side of the main
 2. The unit price for Water Service, ___ inch, Short includes:
 - A. Excavation
 - B. Providing and installing Type K copper pipe, corporation stop, service saddle if required, curb stop, curb box, any fittings required to make connection to the existing service
 - C. Closing existing corporation stop and removal of existing service material
 - D. Providing, placing, and compacting backfill
 - E. Service Saddles
- E. Water Service, ___ inch, Long Each**
1. Water Service, ___ inch, Long will be paid for by the unit installed on the long side of the main. Water Service, ___ inch, Long may be installed via missile or open cut excavation at the discretion of the contractor.
 2. The unit price for Water Service, ___ inch, Long includes:
 - A. Excavation
 - B. Providing and installing Type K copper pipe, corporation stop, service saddle if required, curb stop, curb box, any fittings required to make connection to the existing service
 - C. Closing existing corporation stop and removal of existing service material
 - D. Providing, placing, and compacting backfill
 - E. Service Saddles
- F. Water Service, Reconnect Each**
1. Paid for by the unit including disconnecting the service from the existing main, closing the corporation stop, installing new corporation stop in the new water main, and all fittings and work necessary to connect the existing service to the new water main.
- G. Gate Valve and Box, ___ inch, Modified Each**
1. This work shall conform to the 2020 MDOT Standard Specifications for Construction except as follows:
 - A. Valves shall be rated for at least 250 psi.
- H. Water Main, ___ inch, Cut and Cap Each**
1. Paid for by the unit including all excavation, all fittings and work necessary to cut and cap the watermain where indicated in the plans. This pay item includes the ductile iron cap.

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- I. **In Line Stop, _____ inch** **Each**
1. In Line Stop, __ inch includes furnishing, installing, and operating a water main line stop system to isolate a section of existing live water main as shown on the plans including support, relocation, replacement connection of existing and proposed pipe, furnishing and placing of the line stop, jointing materials, corporation stops, fittings, bullheads and plugs, and clean up.
 2. Perform all work required in conjunction with dewatering operations, without separate payment, and consider it included in the In Line Stop, __ inch pay item. All labor, equipment, and materials for trench excavation, disposal, and backfill is included in this pay item.
- J. **Water Main, Rem** **Foot**
1. The Engineer will measure Water Main, Rem along the centerline of the pipe removed and shall include hand trimming, excavation, disconnection, and removal of mains, valves and boxes, fittings, services, and appurtenances, backfill and compaction. Fittings or valves to be salvaged and reused after removal will be noted on the plans.
- K. **Hydrant, Rem** **Each**
1. Payment for Hydrant, Rem includes all work necessary to remove the hydrant to the existing hydrant valve and dispose of the existing hydrant to a recycle yard. The BPW may direct the contractor to temporarily store, at the construction site, an existing hydrant for return to BPW at no extra cost.
- L. **Utility, Abandon** **Foot**
1. The Engineer will measure Utility, Abandon along the centerline of the pipe, with no deductions for fittings. The unit price of Utility, Abandon includes the cost of excavation and backfill; trench dewatering operations; flowable fill and installation; testing; all material, labor and equipment necessary to remedy an unsatisfactory test including removing and replacing any backfill; providing and installing fittings, gaskets, bracing or sheeting, blocking and miscellaneous items for abandoning pipe in place.
- M. **Audio-Video Route Survey** **Lump Sum**
1. Audio-video route survey will be paid for as a lump sum for providing the services specified in Section 01800. The lump sum price includes furnishing all labor, equipment, and material necessary to complete the audio-video route survey as described in Section 01800.

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1.3 SANITARY SEWER ITEMS

- A. **Sanitary Main, PVC SDR 26 , _ inch, Tr Det _** **Foot**
1. The Engineer will measure Sanitary Main, PVC SDR 26, ___ inch, Tr Det _ of the sizes and trenches required, along the centerline of the pipe, with no deductions for fittings. The unit price of Sanitary Main, PVC SDR 26, _ inch, Tr Det _ includes the cost of excavation and backfill; trench dewatering operations; testing; all material, labor and equipment necessary to remedy an unsatisfactory test including removing and replacing any backfill; providing and installing fittings, connecting to existing pipe, gaskets, bracing or sheeting, blocking and miscellaneous items for installing pipe and reconnecting to the existing sanitary sewer system.
- B. **Dr Structure, _ inch dia, Modified** **Each**
1. This work shall conform to the 2020 MDOT Standard Specifications for Construction as modified by the HBPW.
- C. **Sanitary Lateral, PVC SDR 26, 6 inch, Tr Det _** **Foot**
1. The Engineer will measure Sanitary Lateral of the sizes and trenches required, with no deductions for fittings. The unit price of Sanitary Lateral includes the cost of the work included in Sanitary Main, PVC SDR 26, _ inch, Tr Det _.
- D. **Wye, _ inch by _ inch** **Each**
1. The Engineer will count Wye of the sizes and number required. The unit price of Wye includes the cost of the work included in Sanitary Main, PVC SDR 26, _ inch, Tr Det _.
- E. **Dr Structure Cover, Type B, Modified** **Each**
1. This work shall conform to the 2020 MDOT Standard Specifications for Construction as modified by the HBPW.
- F. **Utility, Abandon** **Foot**
1. The Engineer will measure Utility, Abandon along the centerline of the pipe, with no deductions for fittings. The unit price of Utility, Abandon includes the cost of excavation and backfill; trench dewatering operations; flowable fill and installation; testing; all material, labor and equipment necessary to remedy an unsatisfactory test including removing and replacing any backfill; providing and installing fittings, gaskets, bracing or sheeting, blocking and miscellaneous items for abandoning pipe in place.

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- G. Televis Sanitary Pre-Construction Lump Sum**
1. Paid for as Lump Sum. Contractor to supply video recordings of pipe conditions and field locations of existing main within project limits prior to the start of Work. Pre-construction Video shall include locating marks.
- H. Televis Sanitary Main Post-Construction Lump Sum**
1. Paid for as Lump Sum. Contractor to supply video recordings of pipe conditions of existing main and laterals within project limits after completion of Work.
- I. Televis Laterals Pre-Construction (Sanitary) Lump Sum**
1. Paid for as Lump Sum. Contractor to supply video recordings of pipe conditions and field locations of laterals within project limits prior to the start of Work. Pre-construction Video shall include locating marks including wood stake with depth of lateral at ROW.
- J. Televis Lateral Post-Construction (Sanitary) Lump Sum**
1. Paid for as Lump Sum. Contractor to supply video recordings of pipe conditions of existing laterals within project limits after completion of Work.
- K. Sewer, Rem From Existing Casing, Less Than 24 inch Feet**
1. The Engineer will measure Sewer, Rem From Existing Casing, Less Than 24 inch, along the centerline of the casing. The unit price of Sewer, Rem From Existing Casing, Less Than 24 inch removal includes the cost of excavation and backfilling any pits including any required shoring bracing or sheeting, removal of existing sewer, any casing chocks, sand or grouting.
- L. Sanitary Sewer, _ inch, Installed in ____ Casing Feet**
1. The Engineer will measure Sanitary Sewer, _ inch, Installed in ____ Casing, sizes and trenches required, along the centerline of the pipe, with no deductions for fittings. The unit price of Sanitary Sewer, _ inch, Installed in ____ Casing includes the cost of excavation and backfill; trench dewatering operations; testing; all material, labor and equipment necessary to remedy an unsatisfactory test including removing and replacing any backfill; repairing any damage to casing; providing and installing fittings, connecting to existing pipe, gaskets, bracing or sheeting, blocking and miscellaneous items for installing pipe and reconnecting to the sanitary sewer system.
 2. Casing spacers for PVC pipe shall be Standard or Centered Restrained CSP by Advance Products & Systems, LLC installed per manufacturer's recommendations or Holland BPW approved equal. Casing spacers for PVC pipe will not be paid for separately but shall be included in the cost of the carrier pipe.

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3. Pipe ends shall be enclosed in a manner that prevents foreign material from entering the casing but will allow leakage to pass from the casing in the event of a carrier pipe break. Pipe ends shall be a product of Advance Products & Systems, LLC installed per manufacturer's recommendations or Holland BPW approved equal.
4. Annular space between carrier pipe and casing pipe is not to be grouted. Carrier pipe must be removable without disturbing the casing.

END OF SECTION

- B. Prior to commencing work, Contractor, City, and HBPW Project Representative shall agree on a working schedule setting forth the sequence of operations Contractor proposes to follow.
- C. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at Site in accordance with Laws or Regulations. Contractor shall train Contractor's employees on use of these sheets and shall keep a master copy on hand at Site.
- D. Keep driveways and entrances serving the premises clear and available to Owner, Owner's employees, and private property owners at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on Site. Areas for Contractor's trailers, equipment, and material storage, and Contractor's employee parking shall be agreed by Owner prior to the start of construction.
- E. A Pre-Construction Meeting and at the Site or other convenient location prior to commencement of construction activities to review responsibilities and personnel assignments.
- F. All submittals must be submitted to the City and HBPW Project Representatives for review prior to the commencement of construction activities.

1.04 SAFETY

- A. All services rendered by Contractor shall conform in all respects to the requirements of applicable insurance and governmental health and safety regulations, including but not limited to regulations administered by OSHA and MiOSHA.
- B. Prior to commencement of the project, the Contractor must:
 - 1. Be trained on and comply with the HBPW Contractor Safety Program in Appendix A.
 - 2. Provide a project specific safety plan for review by the HBPW Project Representative. The safety plan shall address (at a minimum): Contractor's (including subcontractors) MiOSHA required procedures and communications applicable to the Scope of Work activities (i.e. LOTO, Confined Space, etc.), communication protocol and emergency contacts for the Contractor and Subcontractors.

1.05 PROTECTION OF EXISTING FACILITIES

- A. The Contractor shall protect Owner's existing utilities and facilities adjacent to the Work and shall restore damaged or temporarily relocated utilities/ improvements to a condition equal to or better than the original condition prior to such damage or temporary relocation, all in accordance with the Drawings and Specifications.
- B. Maintaining in Service: Unless indicated otherwise, all utilities and equipment necessary for Owner's day to day operations, encountered along the line of the Work shall remain continuously in service during all operations under the Contract, unless other arrangements are made with the HBPW Project Representative. The

Contractor shall be responsible for and shall repair all damage due to its Scope of Work and shall not be abated even in the event such damage is not discovered until after completion of the Work.

1.07 OWNER FURNISHED EQUIPMENT

None

1.08 CONTRACT CLOSEOUT

- A. Inspection Procedures: On receipt of a request for inspection, Owner will either proceed with inspection or advise Contractor of unfilled requirements.
- B. Before requesting final inspection for final payment, complete the following. List exceptions in the request.
 - 1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 - 2. Submit record drawings, operations and maintenance manuals, final Project photographs, damage or settlement survey, property survey, and similar final record information.
 - 3. Deliver tools, spare parts, extra stock, and similar items.
 - 4. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
- C. Reinspection procedure: Owner will reinspect the Work upon receipt of notice that the Work, including inspection items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to Owner.
- D. Final Cleaning
 - 1. Clean Site, including rubbish, litter, and foreign substances.
 - 2. Remove temporary protection and facilities installed for protection of the Work during construction.
 - 3. Comply with regulations of authorities having jurisdiction and safety standards for cleaning.

PROJECT MANUAL

Appendix A

BPW Safety Program



**HOLLAND BOARD OF PUBLIC WORKS
CONTRACTOR SAFETY MANAGEMENT PROGRAM**

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<u>REVISION NUMBER</u>	<u>ISSUE DATE</u>
Rev 2	07/21/2022

Approved By: Becky Lehman, Business Services Director
Date: 21 July 2022

Effective Date:
21 July 2022



1.	PURPOSE	4
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Holland Board of Public Works Contractor Safety Management Program

1. Purpose

- 1.1 The Holland Board of Public Works (HBPW) utilizes many different Contractors for various Work activities throughout its operations. This program has been developed and implemented, to ensure that the work is done safely and without risk to HBPW employees, operations and the general public. This program is to be followed by Contractor personnel, as detailed below.

2. Scope

- 2.1 This program applies to Contractors performing maintenance, repairs, testing, turnaround, construction services, major renovations, or any other Work activities on HBPW owned properties or assets, and shall be part of any Contract Agreement or Purchase Order related to that Work.
- 2.2 This program is in addition to provisions of any applicable Service Contract, Purchase Order, or agreement requiring compliance with applicable governmental regulations (eg. MIOSHA, EPA, EGGLE, PHMSA, MDOT, etc.)

3. References

- 3.1 HBPW Contractor Management Policy
- 3.2 MIOSHA Multi-Employer Worksite Agency Instruction
- 3.3 MIOSHA Part 86 Generation, Distribution, and Transmission
- 3.4 HBPW Lockout Tag out Procedure
- 3.5 HBPW Arc Flash Safety Procedure
- 3.6 HBPW Confined Space Entry Procedure
- 3.7 HBPW Hot Work Procedure

4. Definitions

- 4.1 *HBPW Representative* – The HBPW team member responsible for the Work of the Contractor while on site. This does not imply that the HBPW Representative serves in a supervisory role to the Contractor.



- 4.2 *Stop Work* – The authority and responsibility of all HBPW personnel to stop the activities of a Contractor if unsafe acts are observed (also known as “Stop the Job”). All “Stop Work Orders” must be documented in writing by the HBPW employee initiating the order.
- 4.3 *Work* - The activities that the Contractor is performing on or in HBPW Sites, utilities and/or assets.

5. Roles and Responsibilities

5.1 HBPW Representative is responsible for:

- 5.1.1 Ensuring accountability for adherence to this procedure.
- 5.1.2 Ensuring all the necessary documentation is completed or on file from within the previous 12 months, prior to the start of work. Documentation includes;
 - 5.1.2.1 Contractor’s Acknowledgement Form
 - 5.1.2.2 Contractor Site Specific Safety Training documentation
- 5.1.3 Ensuring Site Specific Contractor Safety Training occurs (or has occurred within the last 12 months, for the specific site), is documented and retained, prior to the start of work, if applicable.
- 5.1.4 Reviewing the HBPW Contractor Management Electrical Job Hazards Information Sharing form or the HBPW Contractor Management Electrical Job Hazards Information Sharing for High Voltage Work form with the Contractor (per the HBPW Arc Flash Procedure), if applicable.
- 5.1.5 Periodically auditing the Contractor’s job sites and documenting any deficiencies after discussing them with the Contractor. Frequency of the audits will be commiserate with the level of risk of Work, location of work, previous infractions, and other safety concerns.
- 5.1.6 Enforcing any non-compliance items with the appropriate discipline.
- 5.1.7 Supplying the Contractor with the HBPW Lockout Tag out, Confined Space Entry, Arc Flash, and Hot Work Procedures/Programs, as needed.
- 5.1.8 If the contractor does not have a Job Safety Analysis (JSA) form, provide them with a copy of the HBPW Site Specific JSA form.

5.2 Department Management (Superintendent, Manager, and/or Supervisor) is responsible for:



- 5.2.1 Ensuring accountability for adherence to this procedure.
- 5.2.2 Working with the HBPW Representative, enforcing any non-compliance items with the appropriate discipline.
- 5.2.3 Ensuring training is provided to all applicable HBPW site employees.
- 5.2.4 Ensuring that Site Specific Contractor Safety Training is accurate and updated as needed.

5.3 Safety Department is responsible for:

- 5.3.1 Reviewing this procedure annually, or more frequently if needed, due to an incident or audit finding, to ensure compliance.
- 5.3.2 Auditing the Contractor Safety Management Program annually to ensure compliance.

5.4 All Employees are responsible for:

- 5.4.1 Utilizing the “Stop Work Orders” process and documenting the action, if unsafe acts by a Contractor are observed.

5.5 Contractors are responsible for:

- 5.5.1 Following all elements of this Contractor Safety Management Program.
- 5.5.2 Reviewing and signing the “Contractor Acknowledgement Form”.
- 5.5.3 Ensuring the safe operation of Work and taking all necessary precautions to ensure that all of the Contractor’s Work activities are conducted in a safe manner.
- 5.5.4 Having a company Safety Program that meets MIOSHA requirements.
- 5.5.5 Providing a Crane Lift Plan for high-risk level material lifts.
- 5.5.6 Furnishing, upon request, proof of all safety-related training, equipment, and training to use equipment for the Contractor’s Work activities.
- 5.5.7 Supplying, upon request, documentation of all testing, training, licensing, and certification of the company’s employee’s and equipment.



- 5.5.8 Ensuring that all of the contractor's employees, including all sub-contractor employees, receive training on this HBPW program and the applicable Site Specific Contractor Safety Orientation Training.
- 5.5.9 Notifying the HBPW Representative of changes or additions to the Contractor's work team, and provide documentation of their Site Specific Contractor Safety Orientation Training.
- 5.5.10 Strictly adhering to and coordinating with the HBPW Representative the for HBPW Lockout Tag out, Hot Work, Confined Space Entry, and/or Arc Flash requirements, as applicable to the Contractor's Work.
- 5.5.11 Notifying the HBPW Representative of any non-formal complaint notifications or inspections by MIOSHA or other Regulatory Agency.
- 5.5.12 Notifying the HBPW Representative immediately of any unsafe acts, near misses, injuries or property damage.
- 5.5.13 Following the guidelines listed in the Contractor Safety Management Program Special Instructions (Appendix 9.2).

6. Process and Program Implementation

- 6.1 The HBPW Representative will supply the Contractor Safety Management Program with the Bid or Proposal documentation to be used in order to determine the Contractor's job costs. Subsequent discussions may be held at the request of the Contractor or the HBPW Representative to resolve any differences or questions.
- 6.2 Prior to any work by the Contractor occurring;
 - 6.2.1 The HBPW Representative must also receive a signed Contractor Acknowledgement Form (Appendix 9.1) from the Contractor's Management, or ensure that the HBPW has the forms on file, from within the previous 12 months.
 - 6.2.2 If applicable, the HBPW Representative is responsible to ensure the Site Specific Contractor Safety Orientation Training for the HBPW Site has been provided to the Contractor's employees, or ensure that it has occurred within the last 12 months, for that specific site.
 - 6.2.2.1 The Contractor's employees receiving the training must complete the Site Specific Contractor Safety Orientation Training Attendance form (Appendix 9.3).



- 6.2.3 The HBPW Representative is responsible to review this Contractor Safety Management Program and the Contractor Safety Management Program Special Instructions (Appendix 9.2) or the Site Specific Contractor Safety Orientation Training with the Contractor. Review of the Contractor Safety Program Special Instructions may be waived if the Site Specific Contractor Safety Orientation Training covers all items listed in the Special Instructions.
- 6.3 If applicable, the HBPW Representative will supply the Contractor with the HBPW Lockout Tag out, Confined Space Entry, Arc Flash, and/or Hot Work Procedures/Programs.
- 6.4 If required based on the scope of the work, the HBPW Representative will review the HBPW Contractor Safety Management Electrical Job Hazards Information Sharing form or the HBPW Contractor Safety Management Electrical Job Hazards Information Sharing for High Voltage Work form with the Contractor (per the HBPW Arc Flash Procedure).
- 6.5 The HBPW Representative will periodically audit the Contractor's job sites and document any deficiencies after discussing them with the Contractor. Frequency of the audits will be commiserate with the level of risk of Work, location of work, previous infractions, and other safety concerns.
- 6.6 If the contractor does not have a Job Safety Analysis (JSA) form, the HBPW Representative will provide them with a copy of the HBPW Site Specific JSA form.
- 6.7 This Program will be reviewed and audited annually by the Safety Department to ensure it is effective and compliant.

7. **Enforcement**

- 7.1 Failure by the Contractor to comply with this program, or applicable government regulations (eg. MIOSH, EPA, EGLE, PHMSA, MDOT, etc.), will result in one or more of the following at the HBPW's discretion;
 - 7.1.1 A warning (verbal or written) to the offending person, by the HBPW Representative or HBPW Management.
 - 7.1.2 A warning (verbal or written) by the HBPW Representative or HBPW Management to the Contractor's designated representative.
 - 7.1.3 Removal of the offending person from HBPW premises on either a temporary or permanent basis.
 - 7.1.4 Stoppage of contractor Work, either for a temporary or permanent basis.



- 7.1.5 Forfeiture of future business with HBPW for the Contractor.
- 7.1.6 For any delays in Work or loss suffered by the HBPW, the HBPW may seek recovery of funds as allowed under contract.
- 7.1.7 The HBPW Representative shall document all compliance issues.

8. Records and Retention

- 8.1 Contractor Bid or Proposal will be retained by the HBPW Representative in the project file or other assigned location.
- 8.2 Contractor Acknowledgement forms will be retained in SharePoint for two years.
- 8.3 Site Specific Contractor Safety Orientation Training documentation will be retained in SharePoint for two years.
- 8.4 Pre-job brief or JSA documentation will be retained in SharePoint for two years.
- 8.5 Confined Space debrief documentation will be retained in SharePoint for two years.
- 8.6 HBPW Hot Work Permits will be retained in SharePoint for two years.
- 8.7 HBPW Contractor Management Electrical Job Hazards Information Sharing form or the HBPW Contractor Management Electrical Job Hazards Information Sharing for High Voltage Work form, will be retained in SharePoint for two years.
- 8.8 Lift Plans will be retained in SharePoint for two years.
- 8.9 Stop the Job or Stop Work documentation will be retained in SharePoint for two years. If necessary, an Incident report will be filed based on the event and the scope of the Stop Work.

9. APPENDICES

- 9.1 Appendix 9.1 Contractor Acknowledgement form
- 9.2 Appendix 9.2 Contractor Safety Management Program Special Instructions
- 9.3 Appendix 9.3 Site Specific Contractor Safety Orientation Training Attendance form



HOLLAND BOARD OF PUBLIC WORKS - CONTRACTOR SAFETY MANAGEMENT PROGRAM

CONTRACTOR ACKNOWLEDGEMENT FORM

We have read and understand the Holland Board of Public Works Contractor Safety Management Program Rules presented to us on (date) ____/____/____ and will follow these rules while performing work for the Holland Board of Public Works.

We understand that failure to comply with these rules or supply the requested documentation (Contractor Acknowledgement Form, Contractor Site Specific Safety Orientation Training Form, equipment certifications, etc.) may result in enforcement action as outlined in these rules.

Name of Contractor Company

24-hour Emergency Phone Number

Name of Contractor Safety Representative

Signature of Contractor Safety Representative

Name of HBPW Representative

Signature of HBPW Representative

PROJECT MANUAL

Appendix B

Geotechnical Report



**REPORT OF
GEOTECHNICAL INVESTIGATION FOR
40TH STREET RECONSTRUCTION**

**HOLLAND
ALLEGAN COUNTY
MICHIGAN**

JULY 25, 2025



*Spalding DeDecker
525 Ottawa Avenue NW
Grand Rapids, Michigan 49503*

Project No. 2024.1758



July 25, 2025

Spalding DeDecker
525 Ottawa Avenue NW
Grand Rapids, Michigan 49503

Attention: Mr. John Fortunato

Regarding: 40th Street Reconstruction
Geotechnical Report
Holland, Allegan County, Michigan
Project No. 2024.1758

Dear Mr. Fortunato:

Soils & Structures is pleased to present this geotechnical investigation report for the 40th Street Reconstruction project in Holland, Allegan County, Michigan.

The investigation included eighteen (18) test borings extended to depths of 15.0, 20.0, and 25.0 feet. The test borings were conducted in accordance with ASTM D 1586 procedures.

The report, test boring location plan, and test boring logs are enclosed. The report provides recommendations for the proposed sanitary sewer installation.

We appreciate the opportunity to provide engineering services to Spalding DeDecker. If you have any questions regarding this report, please contact our office.

Sincerely,
Soils & Structures, Inc.

A handwritten signature in black ink, appearing to read 'Sepehr'.

Sepehr Tavassoli
ST/st

Reviewed by:

A handwritten signature in black ink, appearing to read 'Michael J. Partenio'.

Michael J. Partenio, P.E.



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Appendix

- Test Boring Location Plans
- General Soil Profiles
- Test Boring Logs
- Laboratory Tests
- General Soil Information



Location of Soil Investigation

The soil investigation was conducted along East 40th Street between Industrial Avenue and 52nd Street and at the intersection of East 48th Street with 54th Street in Holland, Allegan County, Michigan.

Purpose of Investigation

The purpose of this investigation is to provide geotechnical engineering recommendations for the proposed road reconstruction.

Design Information

The project consists of the reconstruction of the East 40th Street between Industrial Avenue and 52nd Street in Holland, Allegan County, Michigan. The total length of the construction area is approximately 7,500 feet. Utility work may be included in the reconstruction. If the actual design is significantly different than assumed in this report, then Soils & Structures should be contacted so that the recommendations included in this report may be reviewed and revised if necessary.

Excavation will be required for the reconstruction of the proposed roads. The existing surface elevation of the site ranges from 654.5 to 708.5 feet. Excavations for utility repair or replacement are not anticipated to extend deeper than 10.0 feet. Groundwater controls may be necessary for utility excavations.

An equivalent single axle load (ESAL) of 250,000 was assumed for the preliminary pavement recommendations. Pavement is assumed to be subjected primarily to both automobile and truck traffic. A service life of twenty years was assumed for the pavement subgrade recommendations. The subgrade is assumed to be prepared as recommended in this report. The final pavement design should be based on site-specific traffic loads.

Tests Performed

The investigation included eighteen (18) test borings extended to depths of 15.0, 20.0, and 25.0 feet. The test borings are designated as Test Boring One (TB-01) through Test Boring Eighteen (TB-18). The locations were determined by Spalding DeDecker. The locations were reviewed for accessibility and adjusted as necessary by Soils & Structures. The test borings were conducted in accordance with ASTM D 1586 procedures. The ASTM D 1586 standard describes the procedure for sampling and testing soil using the Standard Penetration Test. An automatic hammer was used to obtain the soil samples.

The surface elevations at the test boring locations and additional points of reference were obtained with a Global Navigation Satellite System (GNSS) Receiver. The receiver was connected to the local MDOT CORS base station. Through this system, vertical measurements are obtained and referenced to the North American Vertical Datum (NAVD88). Horizontal measurements are also obtained at the test boring locations which are referenced to the Michigan State Plane Coordinate System. Measurements of additional site-specific reference points were also obtained. Both the vertical and horizontal measurements typically have an accuracy of approximately 0.5 inches. The measured test boring location and surface elevation can be found in Table 1.

Table 1: Measured Test Boring and Points of Reference Locations and Surface Elevations

Test Boring / Location	Elevation (feet)	Northing (feet)	Easting (feet)	Surface Cover	Surface Layer Thickness (inch)
Test Boring One	666.1	464628.7	12660876.9	Asphalt	5.5
Test Boring Two	662.7	464637.6	12661772.9	Asphalt	8.0
Test Boring Three	670.3	464622.4	12662664.9	Asphalt	7.0
Test Boring Four	684.2	464626.4	12663553.7	Asphalt	6.5
Test Boring Five	686.4	464614.4	12663705.5	Asphalt	14.0
Test Boring Six	690.7	464664	12663952.5	Topsoil	17.0
Test Boring Seven	690.3	464666.5	12664059.8	Topsoil	11.0
Test Boring Eight	690.6	464581.9	12663953.5	Topsoil	6.0
Test Boring Nine	693.1	464549	12664058.7	Topsoil	4.0
Test Boring Ten	696.9	464601.2	12664521.1	Asphalt	6.0
Test Boring Eleven	708.5	464590.2	12665307.3	Asphalt	6.0
Test Boring Twelve	698.4	464542.7	12666080.9	Asphalt	6.0
Test Boring Thirteen	672.3	464528.7	12667084.9	Asphalt	7.0
Test Boring Fourteen	654.5	464505.3	12668103.4	Asphalt	10.0
Test Boring Fifteen	702.9	462004.9	12663980.3	Topsoil	8.0
Test Boring Sixteen	703.8	462011.7	12664103.6	Topsoil	6.0
Test Boring Seventeen	701.1	461908.6	12663987.5	Topsoil	6.0
Test Boring Eighteen	700.9	461904.4	12664102.4	Topsoil	5.5
Base Setup	634.4	483609	12662630.7	-	-



Soil samples were classified according to the Unified Soil Classification System. This method is a standardized system for classifying soil according to its engineering properties. Please refer to the appendix of this report for the Unified Classification System Chart. The classification is shown in the "Material Description" column of the test boring logs.

The soil strength was evaluated using the "N" value. The "N" value is the number of blows required to drive a soil sampler one foot with a standard 140-pound drop hammer. The sampler is driven a distance of 18.0 inches. The number of blows for each 6.0-inch increment is recorded. The sum of the second and third intervals is the "N" value. The number of blows for each 6.0-inch interval is shown on the test boring logs under the column labeled "Blow Counts". The "N" value for each sample is shown in the adjacent column.

Laboratory testing consisted of natural moisture content (ASTM D 2216), particle size (sieve) analysis (ASTM D 6913), loss on ignition (ASTM D 2974), Atterberg limits (ASTM D 4318), and unconfined compression (ASTM D 2166). The tests were performed in accordance with the ASTM standards listed above. The tests were performed on representative soil samples. The moisture content documents the presence of groundwater in a soil sample. The sieve analysis determines the particle distribution which is used to classify the soil and estimate its properties. Loss on ignition testing determines the amount of organic material present in a representative soil sample. The Atterberg limit and unconfined compression testing aid in determining the properties of cohesive soils.

The U.S. Geological Survey Topographic map and the Quaternary Geology map of Michigan were reviewed. These maps provide general geological information about the region. Publicly available well log records were reviewed to determine the depth of bedrock.

Description of Soil

The general soil profile consists of layers of sand which extend to depths of 2.0 to 6.5 feet overlying a layer of clay which extends to a depth of at least 25.0 feet. The near-surface sand may have been placed as fill during original construction of the road. The underlying clay is a deposit of fine-textured glacial till. A fine-textured glacial till is an unsorted sediment directly deposited by a glacier in which clay is the primary soil type.

Topsoil is present at the surface of the site in the areas of test borings TB-06 through TB-09 and TB-15 through TB-18. The topsoil thickness ranges from 4.0 to 17.0 inches. The average topsoil thickness is 7.9 inches.

Asphalt is present at the surface of the site in the area of test borings TB-01 through TB-05 and TB-10 through TB-14. The asphalt thickness ranges from 5.5 to 14.0 inches. The average asphalt thickness is 9.5 inches. The asphalt generally overlies 3.0 to 17.0 inches of gravelly sand base.

A layer of sand underlies the topsoil and pavement section and extends to depths ranging from 2.0 to 6.5 feet. The sand may be fill placed during original construction of the road and consists of dark brown to brown and gray, fine to medium clayey sand and sand with clay. The “N” values of the sand fill range from 0 to 9, indicating the sand is in a loose to compact state. The majority of the sand layer is in a loose to slightly compact state. The “N” values generally correspond to an internal friction angle ranging from 25 to 28 degrees. One particularly high “N” value of 30 was recorded at a depth of 2.0 feet in TB-01, which is not representative of the sand layer and is probably due to the presence of a high concentration of gravel.

A layer of clay is present below the sand. The upper portion of the clay layer extends to depths ranging from 9.0 to 18.0 feet and consists of dark brown to brown clay with varying amounts of silt and sand. The “N” values of the upper clay layer range from 5 to 23, indicating the clay is in a firm to very stiff state. The undrained shear strength of the upper clay layer ranges from 6,500 to 7,600 pounds per square foot, indicating the clay is in a very stiff state.

The lower portion of the clay layer consists of gray clay with varying amounts of silt and sand and extends to a depth of at least 25.0 feet. The “N” values of the lower clay layer range from 6 to 17, indicating the clay is in a firm to stiff state. The undrained shear strength of the clay layer ranges from 2,150 to 6,600 pounds per square foot, indicating the clay is in a firm to stiff state.

Pockets of sand are present between depths of 14.0 to 15.0 feet and 10.5 to 13.0 feet in the areas of TB-10 and TB-12, respectively. The sand pockets consist of brown fine to medium sand with clay and silt. The “N” values of the sand pockets range from 15 to 20 indicating the sand is in a compact state. The internal friction angle of the sand is between 28 and 30 degrees.

An additional pocket of sand is present in the area of TB-14 between the depths of 9.0 to 15.0 feet. The sand pocket consists of brown and gray fine to medium silty sand with a trace of gravel. The “N” values of the sand pocket range from 56 to 86, indicating the sand is in an extremely compact state.

A pocket of clay with an “N” value of 1 was encountered in the area of TB-08 between the depths of 6.5 to 9.0 feet. The clay pocket consists of gray sandy clay with a trace of silt and peat. The moisture and organic content of the clay pocket are 25.2 and 2.1 percent, respectively.

Bedrock is present below a depth of 171.0 feet (Well ID: 03000005923). The bedrock is part of the Coldwater Shale and Marshall Formations, both of which originated during the Mississippian Period.

Description of Groundwater Conditions

Groundwater was encountered at depths of 5.0, 10.5, and 14.0 feet in TB-08, TB-12, and TB-10, respectively. These depths correspond to elevations of 685.6, 687.9, and 682.9 feet, respectively. The coloration of the clay generally transitions from brown to gray between depths of 9.0 and 18.0 feet, indicating that the long-term static water table may be within this range. The wide variation is due to the changing elevation along the length of East 40th Street. The brown color in the clay layer is an indication that the minerals in the soil are highly oxidized from cycles of wetting and drying. However, the low permeability of the in-situ soils will may result in consistently high levels of perched water. . The static water elevation is anticipated to fluctuate based on seasonal precipitation. Long-term groundwater monitoring was not included as part of this investigation.

Description of Site

The site consists of the section of East 40th Street between Industrial Avenue and 52nd Street and the intersection of East 48th Street with 54th Street in Holland, Allegan County, Michigan. The surface elevation of the site ranges from 654.5 to 708.5 feet. Photographs #1 and #2 show the general site conditions at the time of the investigation.



Photograph #1: Location of TB-01. View is to the east. (Project No. 2024.1758, 40th Street Reconstruction, Holland, Allegan County, Michigan, September 2024)



Photograph #2: At the intersection of East 48th Street with 54th Street, in the area of TB-16. View is to the southwest. (Project No. 2024.1758, 40th Street Reconstruction, Holland, Allegan County, Michigan, September 2024)

Recommendations

Site & Subgrade Preparation

Trees and vegetation in the construction area should be cleared and removed as part of subgrade preparation. Organic soil, including topsoil and soil containing topsoil, roots, and wood should be removed where fill will be placed in the construction area. The topsoil should be removed to the extent that all soil with an organic content of 3.0 percent or greater is removed. Soil containing roots should be removed to the extent that the root content by volume is 5.0 percent or less. All roots over 0.5 inches in diameter should be removed. The average amount of topsoil anticipated to be removed is 7.9 inches.

Pavement scheduled for replacement should be removed in its entirety in accordance with the proposed replacement method. Excavation may be required for removal of subgrade material to allow for placement of sand subbase and aggregate based depending on the finished road elevation.

Soil brought to the site for fill should be clean sand meeting MDOT Class II specifications. Fill should be placed in accordance with the "Fill" section of this report. The fill should be compacted to 95.0 percent of its maximum density, as determined by the modified proctor method per the ASTM D 1557 standard. The soil which will be used for fill should be kept free of topsoil and other organic materials. Compaction tests are recommended to check the compaction of the new fill.

The pavement subgrade, subbase, and aggregate base should be proof-rolled prior to reconstruction of pavement. The proof roll should consist of single, overlapping passes with the heaviest available equipment. Areas that experience yielding during the proof roll should be recompacted. Areas that continue to experience yielding following recompaction may require undercutting or the placement of a geogrid to stabilize the subgrade.

Utility Installations

If utilities will be repaired or replaced, open-cut excavations are anticipated. The bottoms of excavations should be clear of debris. If soft or unworkable soils are present at the bottom of excavations, the material should be removed and replaced as necessary with approved structural fill. Fill should be placed and compacted in accordance with the recommendations in the "Fill" section of this report. A bedding layer of open-graded aggregate or pea gravel is recommended below utilities to allow for adjustment of the invert elevations. The minimum recommended thickness of the bedding layer is 4.0 inches. The bedding layer should extend the full width of the trench or excavation.

An allowable bearing pressure of 2,500 pounds per square foot may be used for the design of precast utility structures, if necessary, provided the recommendations in this report are observed. The allowable bearing pressure may be increased by 25 percent when considering transient loads such as earthquakes.

Backfill over utilities should be clean sand meeting MDOT Class II specifications. The backfill should be compacted to 95.0 percent of its maximum density to its full depth and should be placed in accordance with the "Fill" section of this report.

Utilities should not be installed on frozen soil. During cold weather construction, the subgrade should be protected from freezing with insulated blankets until backfill is placed over the utilities. Utilities that are damaged by frost heave should be replaced.

Lateral Earth Pressure

Clean sand meeting MDOT Class II specifications should be used as backfill around utilities. Lateral earth pressures should be calculated using a soil density of 120 pounds per cubic foot, a coefficient of active earth pressure of 0.33, and a coefficient of at-rest earth pressure of 0.45 for level clean sand backfill. The effects of any surcharge, hydrostatic pressure or sloping backfill should also be included in the design. The passive pressure of the in-situ clay and sand may be calculated using earth pressure coefficients of 1.0 and 2.7, respectively.

Excavations

The in-situ soils are a mixture of OSHA type “B” and “C” soils. Excavations that will be entered by personnel should be based on OSHA requirements for type “C” soil. Based on OSHA requirements, a maximum allowable side slope of 34 degrees (1.5H:1V) is recommended for excavations 4.0 to 20.0 feet deep. Excavations less than 4.0 feet deep may have vertical side slopes. Excavations adjacent to structures or property lines may require temporary shoring.

Temporary shoring methods such as trench boxes or sheet piling are recommended in areas where the OSHA required excavation slopes cannot be achieved. The temporary shoring should be designed by a licensed engineer and should take groundwater conditions into account. Dewatering systems should be designed to avoid heave, pumping, or the quick condition at the base of the excavation.

Fill

Fill should be compacted to a density of 95.0 percent of its maximum density to its full depth. The maximum density should be determined in accordance with the ASTM D 1557 standard. A maximum thickness per layer of 6.0 inches is recommended for compaction. The lift thickness may be increased to 12.0 inches if a vibratory roller or hoe-pack is used for compaction. Compaction tests are recommended to confirm that the fill is compacted to the required density.

Excavated soil may be retained for use as fill in areas where drainage is not required. If the amount of fill required exceeds the amount of material available on site, additional material will have to be imported. Soil brought to the site for structural fill should be sand meeting MDOT Class II requirements or ASTM requirements for an SP or SW which are the designations for clean sand.

Fill should not be placed over frozen ground, snow, or ice. Soil which contains frozen material should not be used as fill. During winter construction, removal of frozen ground may be necessary prior to placing fill.

Groundwater Management

Groundwater controls and dewatering may be necessary if excavations encounter the water table or a significant quantity of perched water. Temporary well points and sumps may be used to control groundwater during construction. A layer of open-graded stone placed over the bottom of excavations in conjunction with a sump should be sufficient to control water in excavations. Sheet piling may be necessary to control the size of excavation and simplify dewatering efforts. The design should include a hydraulic analysis to check for quick conditions.

Hot Mix Asphalt (HMA) Pavement

Unless otherwise specified in the project plans, the following preliminary pavement section is recommended for replacement of HMA pavement removed during construction. The preliminary HMA pavement sections listed in Table 2 were developed based on the discussions and assumptions included in this report and the design procedures outlined in the “AASHTO Guide for Design of Pavement Structures.” The subgrade should be prepared as described in the “Site & Subgrade Preparation” and “Fill” sections of this report. The recommended pavement section materials listed in Table 2 refer to and should comply with the standard material designations included in applicable MDOT specifications and guidelines including the 2020 MDOT “Standard Specifications for Construction.”

The following recommendations assume that maintenance repairs such as joint sealing, patching, and overlays are regularly performed throughout the lifespan of the pavement and that proper drainage has been established throughout the site. Proper drainage includes the installation of stormwater controls, underdrains, and establishing positive drainage in the subgrade and pavement layers.

Table 2: Recommended Pavement Section

Pavement Cross Section Materials	Standard Duty		Heavy Duty	
	Material	Thickness (in)	Material	Thickness (in)
HMA Wearing Course	4EML	2.0	4EML	2.5
HMA Base Course	4EML	2.0	4EML	2.5
Aggregate Base	21AA Crushed Limestone	8.0	21AA Crushed Limestone	10.0
Sand Subbase	Class II	12.0	Class II	12.0

The recommended asphaltic binder is PG 64-28. Tier 1 recycled asphalt (RAP) specifications may be used in combination with the PG 64-28 binder for the wearing course. Tier 2 RAP may be used for the base course. A softer binder is required to achieve desired performance characteristics when utilizing Tier II RAP contents, per the MDOT Special Provision for Recycled Asphalt Pavement. The compacted asphalt should be between 94.0 and 97.0 percent of the Theoretical Maximum Density, as determined via the Superpave “Rice” Method. The target void content should be 3.5 percent for both the base and wearing course. A tack or “bond coat” of SS-1h emulsion shall be applied between the base and wearing course layers at a rate of 0.1 gallons per square yard.

The paving contractor should submit the proposed mix design to the owner for review and approval prior to placement. The HMA pavement should be placed in at least two lifts. The pavement section should be constructed in accordance with MDOT guidelines and specifications as well as applicable state and local requirements.

Paved areas that display poor workmanship, which may include segregation, “cold screed scrapes”, wearing courses not flush with curbs or rims, roller marks, shoving, smearing or tearing of the mat, flushing, or excessive cold joints should be repaired or replaced by the contractor immediately.



Pavement subgrade, subbase, and aggregate base should be proof rolled prior to paving. The in-situ soil is generally not suitable for use as a base material.

The subgrade, sand subbase and aggregate base should be constructed and prepared in accordance with the "Site & Subgrade Preparation" and "Fill" sections of this report and applicable MDOT guidelines and specifications.

Portland Cement Concrete (PCC) Pavement

The subgrade should be prepared in accordance with the "Site & Subgrade Preparation" and "Fill" sections of this report. A modulus of subgrade reaction of 150 pounds per cubic inch is recommended for the design of slabs on grade, provided the recommendations in this report are observed. The paving contractor should submit the proposed mix design to the owner for review and approval prior to concrete placement.

A base of 12.0 inches of clean sand or aggregate is recommended under the slab on grade concrete pavement. The base thickness may be reduced to 6.0 inches for sidewalk slabs. The sand or aggregate should meet MDOT Class II or 21AA specifications respectively. The in-situ soil is generally not suitable for use as a base material. Unless otherwise specified in the project plans, a minimum slab on grade concrete pavement thickness of 4.0 to 6.0 inches is recommended for standard and heavy-duty concrete pavement. The recommended minimum concrete pavement thickness is 4.0 inches for sidewalks surrounded by greenbelt and 5.0 inches for revealed-face slabs.

Quality Control Testing

Compaction tests are recommended to confirm that in-situ soil and backfill are compacted to the specified density. The tests should be performed in accordance with the ASTM D 6938 standard. While fill is being placed, compaction tests should be performed at the rate of one test per 400 cubic yards of fill and throughout the depth of the fill with a minimum of five tests at each 1.0-foot elevation interval. Full time inspection is recommended while sand and fill are compacted in the construction area. The maximum density should be determined in accordance with ASTM D 1557 or ASTM D 4253 procedures.

A smooth 0.5 to 0.75-inch diameter rod should be used in conjunction with compaction tests to probe for loose areas in fill. A dynamic cone should not be substituted for compaction tests for evaluating fill. Testing should be performed by technicians supervised by a registered geotechnical engineer.

Unless otherwise specified in the design documents, the following testing procedures and frequencies should be observed for HMA and slab on grade concrete. Both asphalt and concrete quality testing should adhere to the 2020 MDOT Standards for Construction.

Asphalt temperatures during placement should be at least 275 degrees Fahrenheit; material that arrives at temperatures below 250 degrees Fahrenheit shall be rejected. Asphalt density testing should be performed with a nuclear density gauge at a minimum rate of one test per 500 square feet of pavement. At least five total verification cores in each course are recommended to assess relative compaction, calibrate the nuclear density gauge, and evaluate thickness. A minimum of two loose mix samples per mix per day should be taken at the plant and delivered to the quality-assurance firm's laboratory for vacuum extraction-gradations. The asphalt contractor should provide a minimum of two (2) theoretical maximum density verifications per day.

Concrete testing should be performed by a certified concrete technician (MCA Michigan Level I or II). One set of concrete tests should be performed for every fifty (50) cubic yards of concrete placed. Concrete should be sampled in accordance with ASTM C172. A set of concrete tests should consist of a concrete slump, air content, and concrete temperature. Slump testing should be performed in accordance with ASTM C143. Air content testing should be performed in accordance with ASTM C231. Concrete temperature testing should be performed in accordance with ASTM C1064. Air temperature should also be recorded at the time of testing. At the time of testing, a set of test cylinders should be molded as well. A minimum of two (2) test cylinders should be molded per cylinder set for 28-day compressive strength testing. Test cylinders should be prepared in accordance with ASTM C31 and tested in accordance with ASTM C39.

General Conditions & Reliance

The report was prepared in accordance with generally accepted practices of the geotechnical engineering profession. The scope of work consisted of performing eighteen (18) test borings and providing soil related recommendations for the design and construction of the proposed road reconstruction. The scope of work did not include an environmental study or wetland determination.

The report and the associated test borings were prepared specifically for the previously described project and site. Soils & Structures should be consulted if a significant change in the scope of the project is made.

The test borings represent point information and may not have encountered all of the soil types and materials present on this site. This report does not constitute a guarantee of the soil or groundwater conditions or that the test borings are an exact representation of the soil or groundwater conditions at all points on this site.

The descriptions and recommendations contained in this report are based on an interpretation of the test borings and laboratory tests. The test borings should not be used independently of the report. If soil conditions are encountered which are significantly different from the test borings, Soils & Structures should be consulted for additional recommendations.



The report and test borings may be relied upon by Spalding DeDecker for the design, construction, permitting, and financing associated with the 40th Street Reconstruction project located in Holland, Allegan County, Michigan. The use of the report and test borings by third parties not associated with this project or for other sites has not been agreed upon by Soils & Structures. Soils & Structures does not recommend or consent to third party use or reliance of the report or test borings unless allowed to review the proposed use of these materials. Unless obtained in writing, consent to third party use should not be assumed. Third parties using the report or test boring logs do so at their own risk and are offered no guarantee or promise of indemnity.

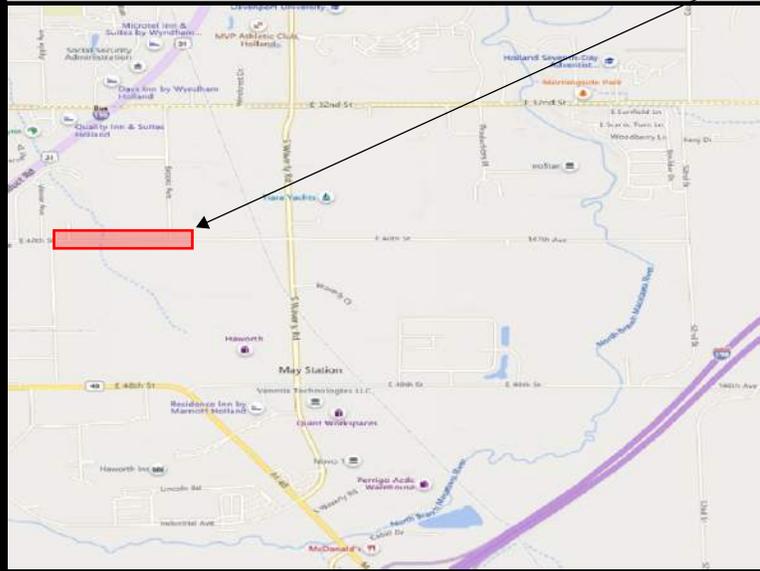
Appendix

Test Boring Location Plans
General Soil Profiles
Test Boring Logs
Laboratory Tests
General Soil Information



VICINITY MAP (NTS)

SITE



TEST BORING LOCATION PLAN
NTS



Note: The background of the test boring plan is a portion of an aerial photograph from Google Earth.

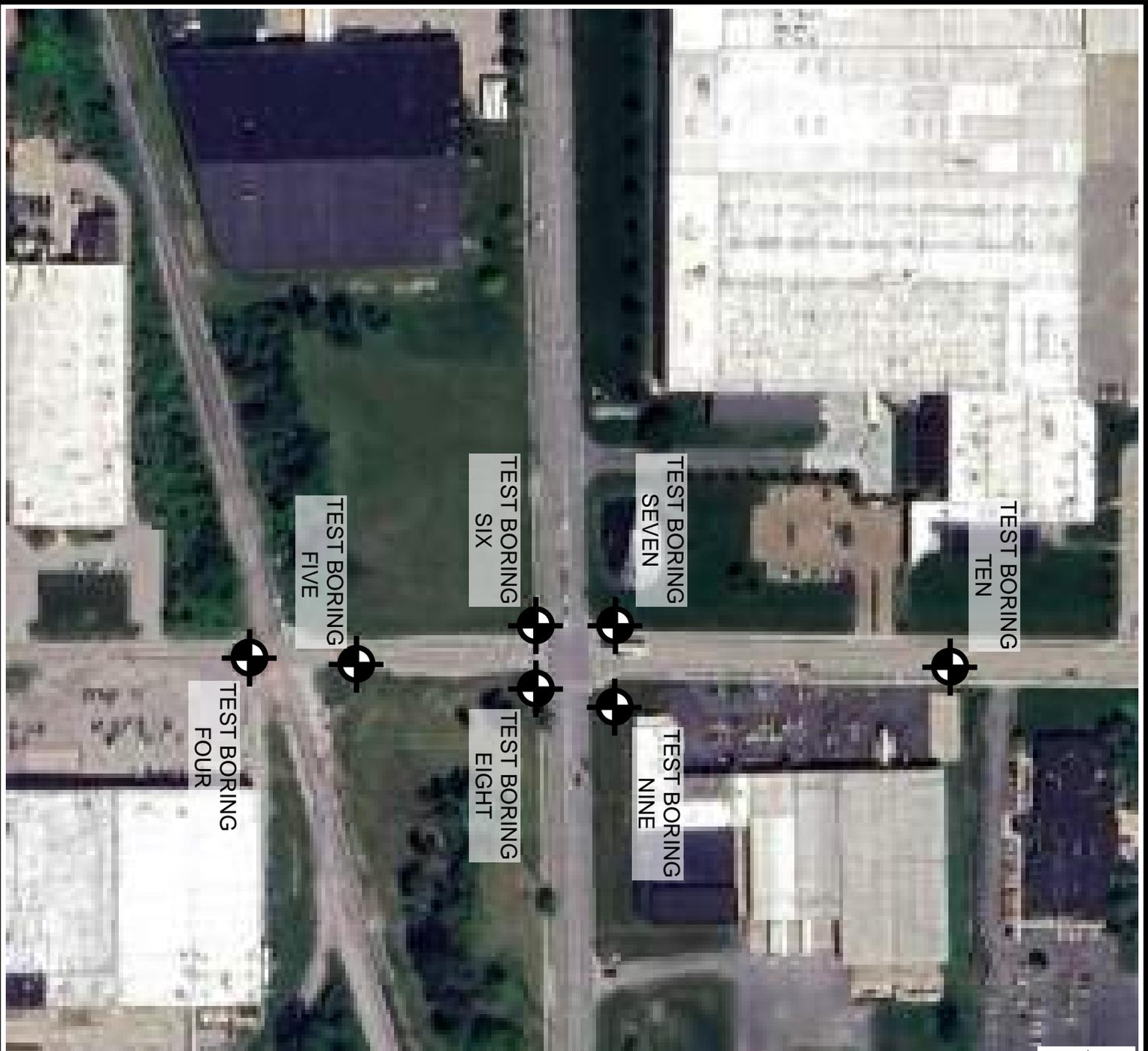
40th Street Reconstruction

Holland, Allegan County, Michigan

Soils & Structures, Inc.
6480 Grand Haven Road
Muskegon, Michigan 49441

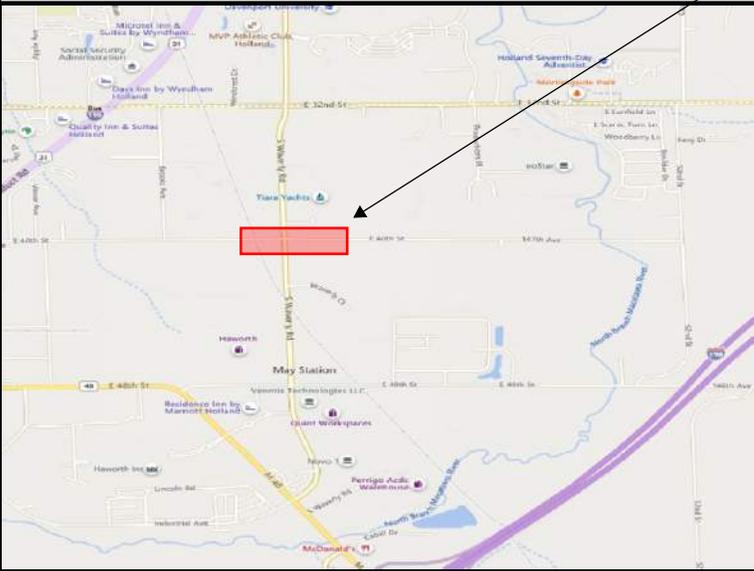
JOB NO.: 2024.1758

DATE: 10-15-2024



VICINITY MAP (NTS)

SITE



TEST BORING LOCATION PLAN
NTS



Note: The background of the test boring plan is a portion of an aerial photograph from Google Earth.

40th Street Reconstruction

Holland, Allegan County, Michigan

Soils & Structures, Inc.
6480 Grand Haven Road
Muskegon, Michigan 49441

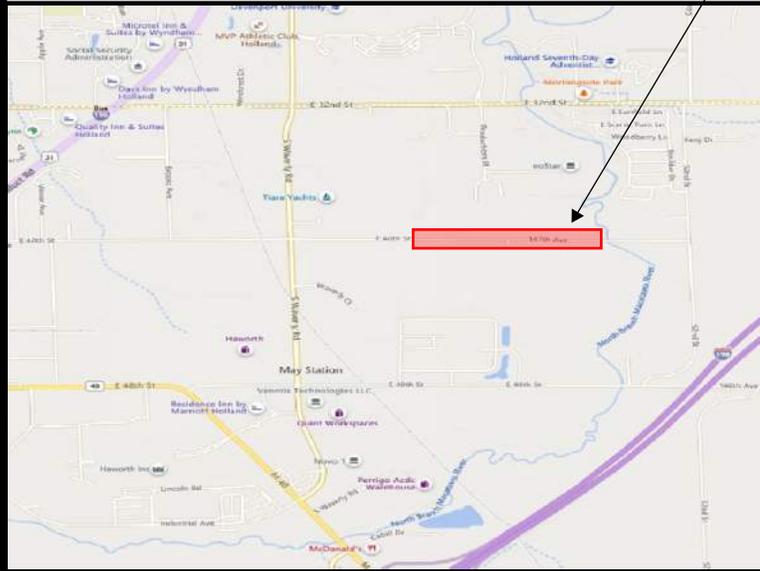
JOB NO.: 2024.1758

DATE: 10-15-2024



VICINITY MAP (NTS)

SITE



TEST BORING LOCATION PLAN
NTS



Note: The background of the test boring plan is a portion of an aerial photograph from Google Earth.

40th Street Reconstruction

Holland, Allegan County, Michigan

Soils & Structures, Inc.
6480 Grand Haven Road
Muskegon, Michigan 49441

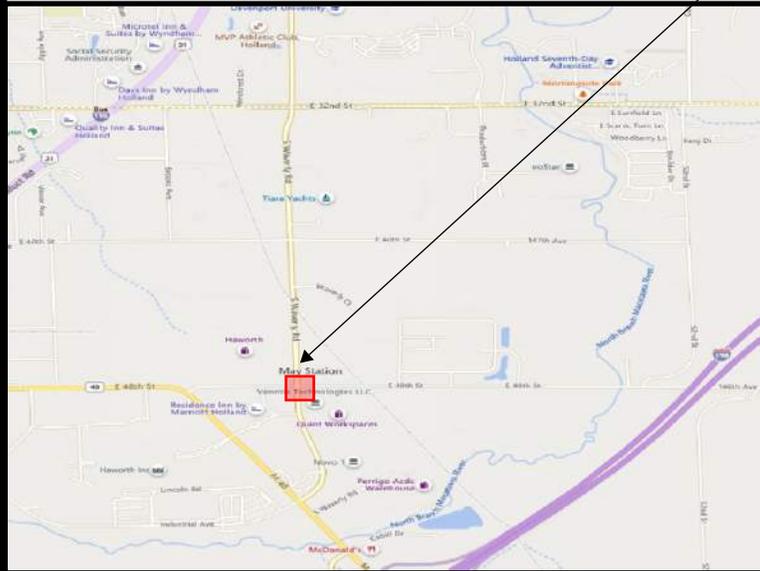
JOB NO.: 2024.1758

DATE: 10-15-2024



VICINITY MAP (NTS)

SITE



TEST BORING LOCATION PLAN
NTS



Note: The background of the test boring plan is a portion of an aerial photograph from Google Earth.

40th Street Reconstruction

Holland, Allegan County, Michigan

Soils & Structures, Inc.
6480 Grand Haven Road
Muskegon, Michigan 49441

JOB NO.: 2024.1758

DATE: 10-15-2024

Project id: 2024.1758

Project Title: 40th Street Reconstruction

Location: Holland, Michigan

Client: Spalding DeDecker

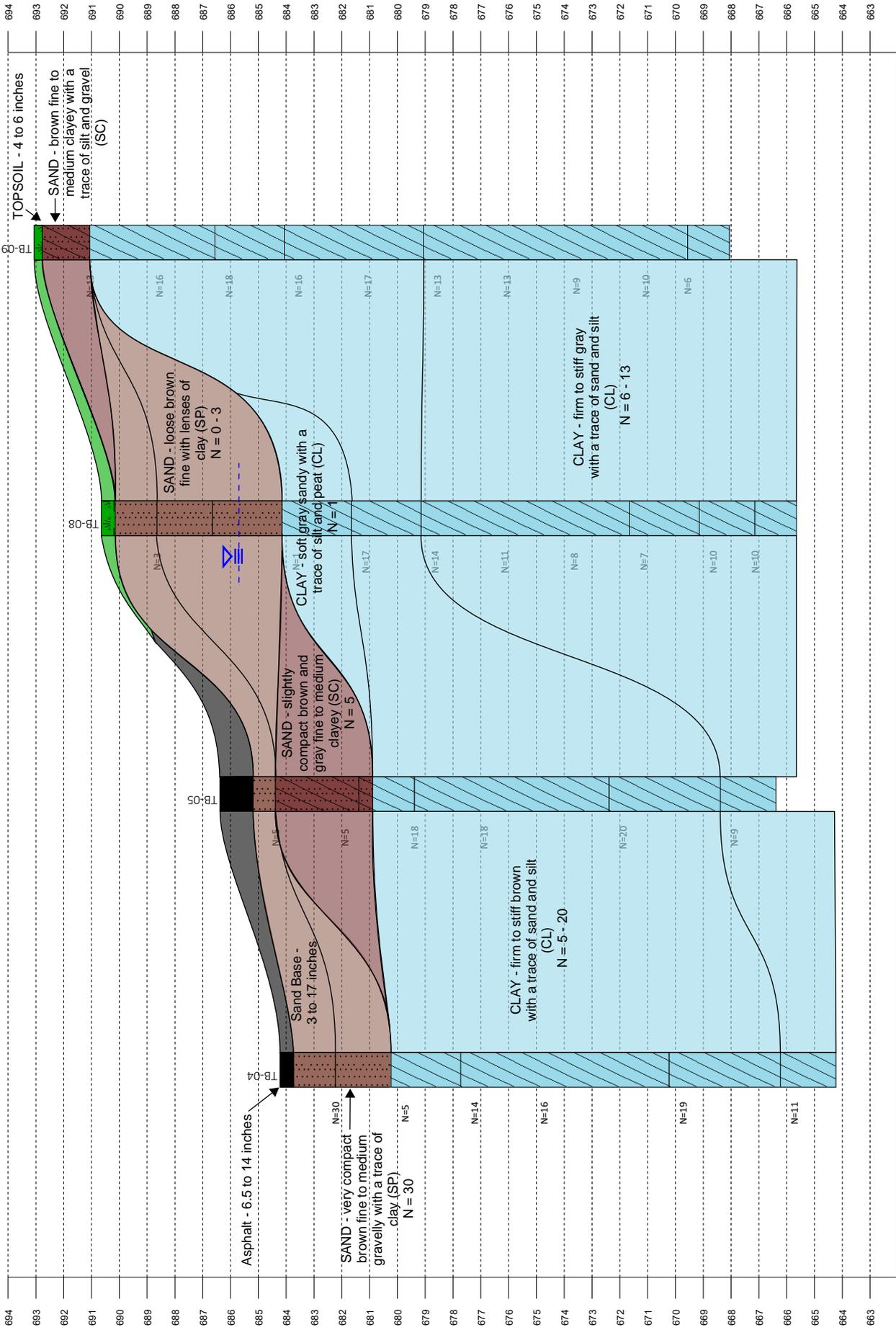
Title: Section line 1

Vertical Scale: 1:60

Horizontal Scale: Not to scale

Engineer: Sepehr Tavassoli

GENERAL SOIL PROFILE



Project id: 2024.1758

Project Title: 40th Street Reconstruction

Location: Holland, Michigan

Client: Spalding DeDecker

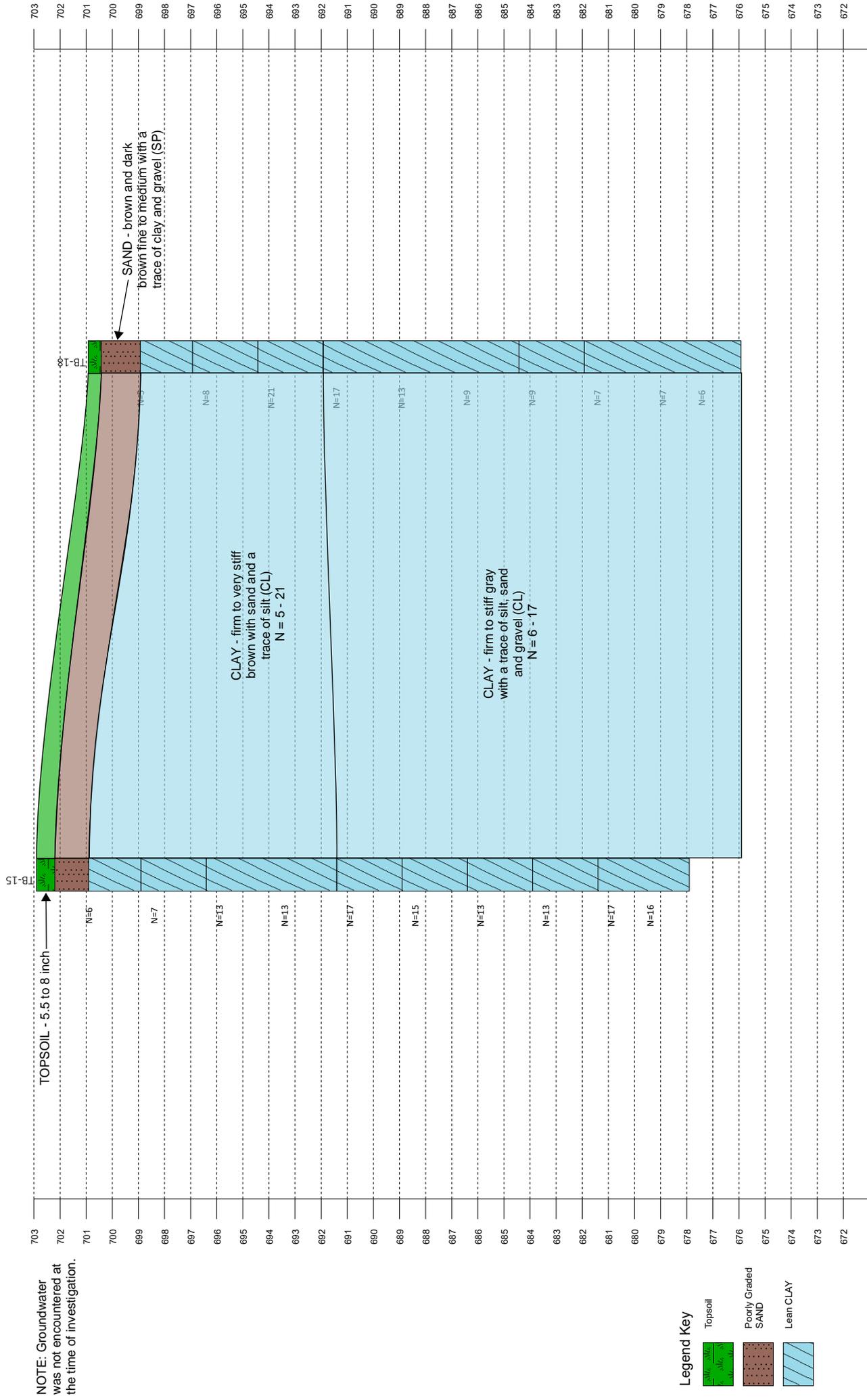
Title: Section line 1

Vertical Scale: 1:60

Horizontal Scale: Not to scale

Engineer: Sepehr Tavassoli

GENERAL SOIL PROFILE



Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 15.00
Date Started: Sep 17 2024 Completed: Sep 17 2024	Northing: 464628.7 Easting: 12660876.9 Elevation: 666.08
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth _____
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling Sep 17 2024 - Water Not Encountered
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS	
											Liquid Limit	Plastic Limit	Plastic Limit Index	Plasticity Index			
1		ASPHALT - (5.5")															
2		SAND - brown fine to coarse gravelly (17.0")															SP
3		SAND - slightly compact brown fine to medium with clay	▲	SPT-A	100	3-3-3	6			12.6							SP-SC
4		CLAY - firm brown with a trace of silt and sand	▲														CL
5		CLAY - stiff brown with a trace of silt and sand	▲	SPT-B	100	4-7-9	16	4.5									CL
6																	CL
7																	CL
8			▲	SPT-C	93	6-8-9	17	4.5		14.1							CL
9																	CL
10		CLAY - very stiff brown with a trace of silt and sand	▲	SPT-D	80	5-9-12	21	4.5									CL
11																	CL
12																	CL
13																	CL
14		CLAY - stiff gray with sand and a trace of silt	▲	SPT-E	100	6-6-8	14	2.2		11.7							CL
15																	
16																	
17																	
18																	
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30																	

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 15.00
Date Started: Sep 17 2024 Completed: Sep 17 2024	Northing: 464637.6 Easting: 12661772.9 Elevation: 662.70
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling Sep 17 2024 - Water Not Encountered
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS	
											Liquid Limit	Plastic Limit	Plastic Limit	Plasticity Index			
1		ASPHALT - (8.0")															
2		SAND - dark brown fine to coarse gravelly (7.0")															SP
3		SAND - brown fine to medium	▲	SPT-A	100	7-5-4	9			16.1							SP
4		SAND - compact brown fine to medium with clay and a trace of gravel	▲														SP-SC
5		CLAY - stiff brown with a trace of silt and sand	▲	SPT-B	100	4-5-8	13	4.5	3.80	14.6							CL
6			▲														
7		CLAY - very stiff brown with a trace of silt, sand, and gravel	▲	SPT-C	80	7-9-12	21			13.8							CL
8			▲														
9		CLAY - stiff brown with a trace of silt and sand	▲	SPT-D	100	6-9-11	20	3.0									CL
10			▲														
11			▲														CL
12			▲														
13			▲														
14		CLAY - stiff gray with a trace of silt and sand	▲	SPT-E	100	5-5-6	11	2.5									CL
15			▲														
16			▲														
17			▲														
18			▲														
19			▲														
20			▲														
21			▲														
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29			▲														
30			▲														

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 15.00
Date Started: Sep 17 2024 Completed: Sep 17 2024	Northing: 464622.4 Easting: 12662664.9 Elevation: 670.31
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling Sep 17 2024 - Water Not Encountered
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS	
											Liquid Limit	Plastic Limit	Liquid Limit - Plastic Limit	Plasticity Index		
1		ASPHALT - (7.0")														
2		SAND - brown fine to coarse gravelly (15.0")														SP
3		SAND - loose brown fine to medium with clay and gravel	▲	SPT-A	100	4-2-1	3			18.8						SP-SC
4		CLAY - soft brown sandy with a trace of silt	▲													CL
5		CLAY - stiff brown with a trace of silt and sand	▲	SPT-B	100	5-6-8	14	3.8	3.37	15.6						CL
6			▲													
7		CLAY - very stiff brown with a trace of silt sand and gravel	▲	SPT-C	100	8-10-11	21									
8			▲													
9			▲													
10			▲	SPT-D	100	8-11-12	23	4.5								CL
11			▲													
12			▲													
13		CLAY - stiff brown with a trace of silt and sand	▲	SPT-E	7	7-9-11	20									CL
14			▲													
15			▲													
16			▲													
17			▲													
18			▲													
19			▲													
20			▲													
21			▲													
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26			▲													
27			▲													
28			▲													
29			▲													
30			▲													

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 20.00
Date Started: Sep 17 2024 Completed: Sep 17 2024	Northing: 464626.4 Easting: 12663553.6 Elevation: 684.23
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling Sep 17 2024 - Water Not Encountered
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS	
											Liquid Limit	Plastic Limit	Plasticity Index				
1		ASPHALT - (6.5")															
2		SAND - brown fine to coarse gravelly (17.0")															SP
3		SAND - very compact brown fine to medium gravelly with a trace of clay	▲	SPT-A	100	14-17-13	30										SP
4		CLAY - firm dark brown sandy	▲														
5			▲	SPT-B	100	3-2-3	5			38.0							CL
6			▲														
7		CLAY - stiff brown with a trace of silt and sand	▲														
8			▲	SPT-C	100	5-6-8	14	4.5		13.8							
9			▲														
10			▲	SPT-D	87	5-7-9	16	4.5									CL
11			▲														
12																	
13																	
14			▲														
15		CLAY - stiff brown with a trace of silt sand and gravel	▲	SPT-E	100	6-8-11	19	4.5									CL
16			▲														
17																	
18			▲														
19		CLAY - stiff gray with a trace of silt and sand	▲	SPT-F	100	3-4-7	11	3.5									CL
20			▲														
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29																	
30																	

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 20.00
Date Started: Sep 17 2024 Completed: Sep 17 2024	Northing: 464614.4 Easting: 12663705.5 Elevation: 686.39
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling Sep 17 2024 - Water Not Encountered
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS	
											Liquid Limit	Plastic Limit	Plasticity Index				
1		ASPHALT - (14.0")															
2		SAND - brown fine to coarse gravelly (9.0")															SP
3		SAND - slightly compact brown fine to medium clayey	▲	SPT-A	100	4-3-2	5			18.9							SC
4			▲														
5		SAND - slightly compact gray fine clayey	▲	SPT-B	100	1-1-4	5	2.5									SC
6		CLAY - firm brown with sand and a trace of silt	▲														CL
7			▲														
8		CLAY - stiff brown with a trace of silt and sand	▲	SPT-C	100	6-9-9	18	4.5									
9			▲														
10			▲	SPT-D	100	6-8-10	18	4.5		13.9							CL
11			▲														
12			▲														
13			▲														
14			▲														
15		CLAY - stiff brown with a trace of silt sand and gravel	▲	SPT-E	100	6-8-12	20	4.5									CL
16			▲														
17			▲														
18			▲														
19		CLAY - stiff gray with a trace of silt and sand	▲	SPT-F	100	3-4-5	9	2.8	1.79	13.9							CL
20			▲														
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29																	
30																	

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 25.00
Date Started: Sep 18 2024 Completed: Sep 18 2024	Northing: 464664.0 Easting: 12663952.5 Elevation: 690.69
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling Sep 18 2024 - Water Not Encountered
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS	
											Liquid Limit	Plastic Limit	Plasticity Index				
1		TOPSOIL - brown sandy with a trace of gravel and cobbles (17.0")															
2		SAND - slightly compact dark brown fine to coarse gravelly															SP
3		CLAY - firm brown sandy with a trace of silt	▲	SPT-A	100	8-3-3	6										CL
4		CLAY - stiff brown sandy with a trace of silt and gravel	▲														CL
5			▲	SPT-B	47	3-5-7	12										CL
6			▲														CL
7		CLAY - stiff brown with a trace of silt and sand	▲														CL
8			▲	SPT-C	100	6-9-11	20	4.5	3.46	13.2							CL
9			▲														CL
10			▲	SPT-D	100	6-8-11	19	4.5		12.7							CL
11			▲														CL
12			▲	SPT-E	100	4-7-12	19	4.5									CL
13			▲														CL
14		CLAY - stiff gray with a trace of silt sand and gravel	▲														CL
15			▲	SPT-F	100	4-6-7	13	3.2	1.59	13.7							CL
16			▲														CL
17			▲	SPT-G	100	3-4-6	10	1.5									CL
18			▲														CL
19		CLAY - firm gray with a trace of silt sand and gravel	▲														CL
20			▲	SPT-H	100	2-4-3	7	1.5									CL
21			▲														CL
22			▲	SPT-I	80	3-3-4	7			13.4							CL
23			▲														CL
24		CLAY - stiff gray with a trace of silt sand and gravel	▲	SPT-J	47	3-4-5	9										CL
25			▲														CL
26																	
27																	
28																	
29																	
30																	

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 25.00
Date Started: Sep 19 2024 Completed: Sep 19 2024	Northing: 464666.5 Easting: 12664059.8 Elevation: 690.27
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling Sep 19 2024 - Water Not Encountered
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits			USCS
											Liquid Limit	Plastic Limit	Plasticity Index	
1		TOPSOIL - dark brown sandy with a trace of clay (11.0")												CL
2		CLAY - brown sandy with a trace of silt												CL
3		CLAY - stiff brown with a trace of silt and sand	▲	SPT-A	100	3-4-7	11	4.5		12.8				CL
4			▲											CL
5			▲	SPT-B	100	6-7-8	15	4.5	3.34	13.0				CL
6			▲											CL
7		CLAY - stiff brown with a trace of silt sand and gravel	▲	SPT-C	100	6-8-10	18	4.5		6.4				CL
8			▲											CL
9		CLAY - stiff brown with a trace of silt and sand	▲	SPT-D	100	5-6-9	15	4.5	3.63	13.2				CL
10			▲											CL
11		CLAY - stiff gray with a trace of silt and sand	▲	SPT-E	100	3-6-6	12	3.5		11.8				CL
12			▲											CL
13			▲	SPT-F	100	2-4-5	9	2.5		13.1				CL
14			▲											CL
15		CLAY - stiff gray with a trace of silt sand and gravel	▲	SPT-G	100	3-5-5	10	2.0		14.8				CL
16			▲											CL
17		CLAY - firm gray with a trace of silt and sand	▲	SPT-H	100	3-3-4	7	1.8		14.1				CL
18			▲											CL
19		CLAY - stiff gray with a trace of silt and sand	▲	SPT-I	100	3-3-5	8	1.5		15.4				CL
20			▲											CL
21		CLAY - firm gray with a trace of silt sand and gravel	▲	SPT-J	100	2-2-4	6	1.5		15.0				CL
22			▲											CL
23														CL
24														CL
25														CL
26														CL
27														CL
28														CL
29														CL
30														CL

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 25.00
Date Started: Sep 19 2024 Completed: Sep 19 2024	Northing: 464581.9 Easting: 12663953.5 Elevation: 690.65
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	At Time of Drilling 5.00' on Sep 19 2024
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits			USCS
											Liquid Limit	Plastic Limit	Plasticity Index	
1		TOPSOIL - brown sandy with a trace of gravel (6.0")												SP
2		SAND - brown fine to medium gravelly with a trace of clay and silt												SP
3		SAND - loose brown fine with lenses of clay	▲	SPT-A	80	2-2-1	3			7.7				SP
4		SAND - loose brown fine with a trace of clay												SP
5			▲	SPT-B	100	0-0-0	WO H			21.4				SP
6														SP
7		CLAY - soft gray sandy with a trace of silt and peat												CL
8			▲	SPT-C	13	0-0-1	1			25.2				CL
9		Organic Content = 2.1% @ 7.0'												CL
10		CLAY - stiff brown gravelly with a trace of silt and sand												CL
11			▲	SPT-D	100	5-8-9	17	3.5						CL
12		CLAY - stiff gray with a trace of silt and sand												CL
13			▲	SPT-E	100	5-6-8	14	3.0	3.30	13.7				CL
14														CL
15			▲	SPT-F	100	2-6-5	11	1.8		14.7	24	13	11	CL
16														CL
17			▲	SPT-G	100	3-3-5	8	1.2						CL
18														CL
19		CLAY - firm gray with a trace of silt and sand												CL
20			▲	SPT-H	100	2-2-5	7	1.2						CL
21														CL
22		CLAY - stiff gray with a trace of silt sand and lenses of sand												CL
23			▲	SPT-I	100	2-4-6	10	1.8						CL
24		CLAY - stiff gray with sand and a trace of silt												CL
25			▲	SPT-J	100	3-4-6	10	2.2						CL
26														
27														
28														
29														
30														

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 25.00
Date Started: Sep 19 2024 Completed: Sep 19 2024	Northing: 464549.0 Easting: 12664058.7 Elevation: 693.06
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling Sep 19 2024 - Water Not Encountered
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS	
											Liquid Limit	Plastic Limit	Plasticity Index				
1	TOPSOIL - dark brown sandy (4.0")																
2	SAND - brown fine to medium clayey with a trace of silt and gravel																SC
3	CLAY - stiff brown with a trace of silt and sand		▲	SPT-A	80	5-6-7	13	4.0									CL
4			▲														CL
5			▲	SPT-B	100	4-7-9	16	4.5									CL
6			▲														CL
7	CLAY - stiff brown with a trace of silt sand and gravel		▲	SPT-C	100	6-8-10	18	4.5									CL
8			▲														CL
9	CLAY - stiff brown with a trace of silt and sand		▲	SPT-D	100	7-8-8	16	4.5									CL
10			▲														CL
11			▲	SPT-E	100	5-8-9	17	4.5									CL
12			▲														CL
13			▲	SPT-F	100	4-5-8	13	4.5									CL
14	CLAY - stiff gray with a trace of silt and sand		▲														CL
15			▲	SPT-G	100	6-6-7	13	2.5									CL
16			▲														CL
17			▲	SPT-H	100	3-3-6	9	2.2		13.3							CL
18			▲														CL
19			▲	SPT-I	100	3-4-6	10	2.0									CL
20			▲														CL
21	CLAY - firm gray with a trace of silt and sand		▲	SPT-J	100	2-2-4	6	1.5	1.08	14.0							CL
22			▲														CL
23			▲														CL
24			▲														CL
25			▲														CL
26			▲														CL
27			▲														CL
28			▲														CL
29			▲														CL
30			▲														CL

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 15.00
Date Started: Sep 17 2024 Completed: Sep 17 2024	Northing: 464601.2 Easting: 12664521.1 Elevation: 696.94
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling 14.00' on Sep 17 2024
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS		
											Liquid Limit	Plastic Limit	Plasticity Index	Plasticity Index	Plasticity Index			
1		ASPHALT - (6.0")																
2		SAND - brown fine to coarse gravelly (10.0")															SP	
3		SAND - compact brown fine to medium	▲	SPT-A	100	6-5-4	9			8.2							SP	
4		CLAY - stiff brown with a trace of silt and sand	▲															
5			▲	SPT-B	100	4-7-9	16	4.5										
6			▲															
7			▲	SPT-C	100	5-6-8	14	4.5										
8			▲															
9																		
10			▲	SPT-D	100	4-6-9	15	4.5		13.0								
11			▲															
12																		
13			▲															
14		SAND - compact brown fine with clay and silt	▲	SPT-E	100	6-12-8	20			20.4							SP-SC	
15																		
16																		
17																		
18																		
19																		
20																		
21																		
22																		
23																		
24																		
25																		
26																		
27																		
28																		
29																		
30																		

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 15.00
Date Started: Sep 18 2024 Completed: Sep 18 2024	Northing: 464590.2 Easting: 12665307.3 Elevation: 708.55
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling Sep 18 2024 - Water Not Encountered
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS	
											Liquid Limit	Plastic Limit	Plastic Limit Index	Plasticity Index			
1		ASPHALT - (6.0")															
2		SAND - brown fine to coarse gravelly (16.0")															SP
3		SAND - slightly compact brown fine to medium clayey with a trace of silt	▲	SPT-A	80	4-3-4	7			13.4							SC
4		CLAY - firm gray with a trace of silt and sand	▲														CL
5		CLAY - stiff brown with a trace of silt and sand	▲	SPT-B	100	3-6-9	15	4.5		15.8							CL
6			▲														CL
7			▲														CL
8			▲	SPT-C	100	6-8-10	18	4.5		14.9							CL
9		CLAY - stiff brown with a trace of silt sand and gravel	▲														CL
10			▲	SPT-D	100	5-10-10	20	4.5									CL
11			▲														CL
12			▲														CL
13		CLAY - stiff brown with sand and a trace of silt and gravel	▲														CL
14			▲	SPT-E	33	8-7-7	14										CL
15			▲														CL
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29																	
30																	

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 15.00
Date Started: Sep 18 2024 Completed: Sep 18 2024	Northing: 464542.7 Easting: 12666080.9 Elevation: 698.37
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling 10.50' on Sep 18 2024
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS	
											Liquid Limit	Plastic Limit	Plasticity Index				
1		ASPHALT - (6.0")															
2		SAND - brown fine to coarse gravelly (10.5")															SP
3		SAND - brown fine to medium															SP
4		CLAY - stiff brown with a trace of silt sand and gravel	▲	SPT-A	100	4-5-8	13	3.8		14.1							CL
5		CLAY - stiff brown with a trace of silt and sand	▲														
6			▲	SPT-B	87	4-7-9	16	4.5		13.1							
7			▲														
8			▲	SPT-C	100	6-7-10	17	4.5		14.3							CL
9			▲														
10			▲	SPT-D	100	5-6-9	15			20.6							
11		SAND - compact brown fine with clay and silt	▲														
12			▲														SP-
13			▲														SC
14		CLAY - stiff brown with a trace of silt sand and gravel	▲	SPT-E	100	7-9-9	18	3.0		15.5							CL
15			▲														
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29																	
30																	

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 15.00
Date Started: Sep 18 2024 Completed: Sep 18 2024	Northing: 464528.7 Easting: 12667084.9 Elevation: 672.25
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling Sep 18 2024 - Water Not Encountered
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS	
											Liquid Limit	Plastic Limit	Plasticity Index				
1		ASPHALT - (7.0")															SP
2		SAND - brown fine to coarse gravelly (3.0")															SP
3		SAND - brown fine to medium	▲	SPT-A	100	3-2-3	5			15.4							SC
4		SAND - slightly compact dark brown fine to medium clayey	▲														
5		Organic Content = 1.3% @ 2.0'	▲	SPT-B	100	3-5-7	12	4.5		13.5							CL
6		CLAY - stiff brown with a trace of silt and sand	▲														
7		CLAY - stiff brown with a trace of silt sand and gravel	▲	SPT-C	100	5-7-10	17	4.5									CL
8			▲														
9		CLAY - stiff brown with a trace of silt and sand	▲														
10			▲	SPT-D	100	3-6-9	15	4.0									CL
11			▲														
12			▲														
13			▲														
14		CLAY - stiff gray with a trace of silt and sand	▲	SPT-E	100	4-5-6	11	2.2		14.6							CL
15			▲														
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29																	
30																	

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 15.00
Date Started: Sep 18 2024 Completed: Sep 18 2024	Northing: 464505.3 Easting: 12668103.4 Elevation: 654.51
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling Sep 18 2024 - Water Not Encountered
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS	
											Liquid Limit	Plastic Limit	Plasticity Index				
1		ASPHALT - (10.0")															
2		SAND - brown fine to coarse gravelly (12.0")															SP
3		SAND - loose dark brown fine to medium clayey	▲	SPT-A	87	2-2-2	4			11.8							SC
4		CLAY - soft gray sandy with a trace of silt	▲														
5		CLAY - soft gray sandy with a trace of silt	▲	SPT-B	80	1-2-2	4			14.4							CL
6		CLAY - soft gray sandy with a trace of silt	▲														
7		CLAY - extremely stiff gray sandy with a trace of silt and gravel	▲	SPT-C	0	4-38-50...	50/4										CL
8		CLAY - extremely stiff gray sandy with a trace of silt and gravel	▲														
9		SAND - extremely compact brown fine to medium silty with a trace of gravel	▲														
10		SAND - extremely compact brown fine to medium silty with a trace of gravel	▲	SPT-D	100	32-36-50	86			7.1							SM
11		SAND - extremely compact brown fine to medium silty with a trace of gravel	▲														
12		SAND - extremely compact brown fine to medium silty with a trace of gravel	▲														
13		SAND - extremely compact brown fine to medium silty with a trace of gravel	▲														
14		SAND - extremely compact gray fine silty with a trace of gravel	▲	SPT-E	100	28-28-31	59	2.0		7.0							SM
15		SAND - extremely compact gray fine silty with a trace of gravel	▲														
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29																	
30																	

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 25.00
Date Started: Sep 16 2024 Completed: Sep 16 2024	Northing: 462004.9 Easting: 12663980.3 Elevation: 702.90
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling Sep 16 2024 - Water Not Encountered
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS	
											Liquid Limit	Plastic Limit	Plasticity Index				
1		TOPSOIL - dark brown sandy with a trace of gravel and cobbles (8.0")															
2		SAND - dark brown fine to medium with a trace of clay and gravel															SP
3		CLAY - firm brown sandy with a trace of silt	▲	SPT-A	80	5-3-3	6										CL
4		CLAY firm brown sandy with gravel and a trace of silt	▲														
5		CLAY - stiff brown with a trace of silt and sand	▲	SPT-B	7	2-3-4	7										CL
6			▲														
7			▲	SPT-C	100	5-5-8	13	4.5									CL
8			▲														
9			▲	SPT-D	100	5-6-7	13	4.5									CL
10			▲														
11		CLAY - stiff gray with a trace of silt sand and seams of sand	▲	SPT-E	100	7-7-10	17	4.5		12.1							CL
12			▲														
13		CLAY - stiff gray with a trace of silt and sand	▲	SPT-F	100	5-7-8	15	4.5									CL
14			▲														
15		CLAY - stiff gray with a trace of silt sand and gravel	▲	SPT-G	100	6-5-8	13	4.0	2.10	12.3							CL
16			▲														
17		CLAY - stiff gray with a trace of silt and sand	▲	SPT-H	100	5-6-7	13	3.0									CL
18			▲														
19		CLAY - stiff gray with a trace of silt sand and gravel	▲	SPT-I	53	7-8-9	17			13.5							CL
20			▲														
21			▲	SPT-J	100	4-7-9	16	3.2									
22			▲														
23			▲														
24			▲														
25			▲														
26			▲														
27			▲														
28			▲														
29			▲														
30			▲														

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 25.00
Date Started: Sep 16 2024 Completed: Sep 16 2024	Northing: 462011.7 Easting: 12664103.6 Elevation: 703.75
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling Sep 16 2024 - Water Not Encountered
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS	
											Liquid Limit	Plastic Limit	Plasticity Index				
1	TOPSOIL	TOPSOIL - dark brown sandy with a trace of clay and gravel (6.0")															SC
2	SAND	SAND - brown fine to medium clayey with a trace of gravel															SC
3	SAND	SAND - slightly compact brown fine clayey	▲	SPT-A	100	3-3-3	6										CL
4	CLAY	CLAY - firm brown sandy with a trace of silt	▲														
5	CLAY	CLAY - stiff brown with a trace of silt and sand	▲	SPT-B	100	4-6-8	14	4.2									
6	CLAY		▲														
7	CLAY		▲														
8	CLAY		▲	SPT-C	100	7-8-12	20	4.5	3.61	12.9							CL
9	CLAY		▲														
10	CLAY		▲	SPT-D	87	5-7-10	17	4.5									
11	CLAY		▲														
12	CLAY		▲														
13	CLAY		▲	SPT-E	100	6-8-11	19	4.5		12.7							
14	CLAY	CLAY - stiff gray with a trace of silt and sand	▲														
15	CLAY		▲	SPT-F	100	5-6-8	14	3.8									
16	CLAY		▲														
17	CLAY		▲														
18	CLAY		▲	SPT-G	100	5-6-7	13	2.5									CL
19	CLAY		▲														
20	CLAY		▲	SPT-H	100	3-3-6	9	2.0	1.49	12.0							
21	CLAY		▲														
22	CLAY		▲														
23	CLAY		▲	SPT-I	100	3-4-6	10	1.8									
24	CLAY	CLAY - stiff gray with a trace of silt sand and seams of sand	▲	SPT-J	100	3-4-6	10	2.5		11.9							CL
25	CLAY		▲														
26	CLAY																
27	CLAY																
28	CLAY																
29	CLAY																
30	CLAY																

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 25.00
Date Started: Sep 16 2024 Completed: Sep 16 2024	Northing: 461908.6 Easting: 12663987.5 Elevation: 701.07
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling Sep 16 2024 - Water Not Encountered
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS	
											Liquid Limit	Plastic Limit	Plasticity Index				
1		TOPSOIL - dark brown sandy with a trace of gravel (6.0")															SP
2		SAND - dark brown fine to medium with a trace of clay and gravel															SC
3		SAND - slightly compact brown fine to medium clayey															CL
4		CLAY - stiff brown with a trace of silt and sand															CL
5			SPT-A		100	4-4-3	7										
6			SPT-B		80	2-5-6	11	4.5	3.24	13.7							
7			SPT-C		100	5-5-7	12	4.2		13.8							
8			SPT-D		100	6-6-9	15	4.5		13.6							
9			SPT-E		100	3-7-8	15	4.0									
10			SPT-F		100	4-4-5	9	1.8	1.45	12.4							CL
11		CLAY - stiff gray with a trace of silt and sand															
12			SPT-G		80	3-3-5	8	1.5									CL
13		CLAY - stiff gray with a trace of silt sand and gravel															
14			SPT-H		0	4-4-6	10										
15			SPT-I		100	3-3-4	7	1.5									CL
16		CLAY - firm gray with a trace of silt sand and lenses of sand															
17			SPT-J		100	1-3-4	7	1.5									CL
18		CLAY - firm gray with a trace of silt and sand															
19																	
20																	
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29																	
30																	

Project Name: 40th Street Reconstruction	Project Number: 2024.1758
Project Location: Holland, Michigan	Logged By: J Christopher Reviewed By: K Martella
Client: Spalding DeDecker	Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 25.00
Date Started: Sep 16 2024 Completed: Sep 16 2024	Northing: 461904.4 Easting: 12664102.4 Elevation: 700.92
Drilling Method: 3-1/4" Hollow Stem Auger	Frost Depth
Equipment: Geoprobe	Ground Water Levels
Hammer Type: Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling Sep 16 2024 - Water Not Encountered
Notes:	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits			USCS
											Liquid Limit	Plastic Limit	Plasticity Index	
1		TOPSOIL - dark brown fine sandy with a trace of gravel (5.5")												SP
2		SAND - brown fine to medium with a trace of clay and gravel												CL
3		CLAY - firm brown with a trace of silt sand and gravel	▲	SPT-A	47	2-2-3	5			20.6				CL
4		CLAY - stiff brown with sand and a trace of silt and gravel	▲											CL
5		CLAY - very stiff brown with a trace silt and of sand	▲	SPT-B	67	3-3-5	8	3.0						CL
6		CLAY - stiff gray with a trace of silt and sand	▲											CL
7		CLAY - stiff gray with a trace of silt and sand	▲	SPT-C	100	6-8-13	21	4.2		13.1				CL
8			▲											CL
9			▲	SPT-D	100	6-7-10	17	4.2	2.08	12.2				CL
10			▲											CL
11			▲	SPT-E	100	5-5-8	13	2.8						CL
12			▲											CL
13			▲	SPT-F	100	3-3-6	9	1.8		13.1	24	13	11	CL
14			▲											CL
15		CLAY - stiff gray with a trace of silt sand and gravel	▲	SPT-G	100	3-4-5	9			13.1				CL
16		CLAY - firm gray with a trace of silt sand and gravel	▲											CL
17			▲	SPT-H	60	3-3-4	7	1.0						CL
18			▲											CL
19			▲	SPT-I	80	3-3-4	7	1.0						CL
20			▲											CL
21			▲	SPT-J	80	2-3-3	6	1.2		16.1				CL
22														
23														
24														
25														
26														
27														
28														
29														
30														



Determination of Water Content (Moisture) of Soil and Rock by Mass

(ASTM D2216)

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Client Spalding DeDecker
 Date 10/9/2024

Sample Location		TB-01	TB-02	TB-03	TB-07	TB-08
Sample ID		A	A	A	A	A
Depth	ft	2.0	2.0	2.0	2.0	2.0
Sample Type		SPT	SPT	SPT	SPT	SPT
Mass of Container	g	19.65	19.66	19.57	19.73	19.55
Mass of Wet Soil and Container	g	80.69	80.83	80.34	80.77	80.52
Accepted Dry mass + container	g	73.88	72.35	70.72	73.83	76.14
Water Content	%	12.6	16.1	18.8	12.8	7.7
Remarks						

Sample Location		TB-05	TB-10	TB-12	TB-11	TB-13
Sample ID		A	A	A	A	A
Depth	ft	2.0	2.0	2.0	2.0	2.0
Sample Type		SPT	SPT	SPT	SPT	SPT
Mass of Container	g	411.10	19.71	19.47	328.50	328.50
Mass of Wet Soil and Container	g	665.90	80.80	80.62	599.50	618.60
Accepted Dry mass + container	g	625.40	76.15	73.08	567.40	579.90
Water Content	%	18.9	8.2	14.1	13.4	15.4
Remarks						

Sample Location		TB-14	TB-15	TB-18	TB-17	TB-14
Sample ID		A	A	A	B	B
Depth	ft	2.0	2.0	2.0	4.5	4.5
Sample Type		SPT	SPT	SPT	SPT	SPT
Mass of Container	g	19.53		21.10	50.74	19.64
Mass of Wet Soil and Container	g	80.43		80.22	208.94	80.88
Accepted Dry mass + container	g	74.01		70.14	189.84	73.15
Water Content	%	11.8		20.6	13.7	14.4
Remarks						

Technician mvanweelden
 Checked Approved
 mvanweelden



Determination of Water Content (Moisture) of Soil and Rock by Mass

(ASTM D2216)

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Client Spalding DeDecker
 Date 10/9/2024

Sample Location		TB-13	TB-11	TB-12	TB-08	TB-07
Sample ID		B	B	B	B	B
Depth	ft	4.5	4.5	4.5	4.5	4.5
Sample Type		SPT	SPT	SPT	SPT	SPT
Mass of Container	g	19.39	19.51	21.28	20.78	49.76
Mass of Wet Soil and Container	g	80.96	80.35	80.58	80.33	213.42
Accepted Dry mass + container	g	73.66	72.07	73.71	69.83	194.58
Water Content	%	13.5	15.8	13.1	21.4	13.0
Remarks						

Sample Location		TB-03	TB-04	TB-02	TB-02	TB-01
Sample ID		B	B	B	C	C
Depth	ft	4.5	4.5	4.5	7.0	7.0
Sample Type		SPT	SPT	SPT	SPT	SPT
Mass of Container	g	51.26	19.70	51.28	19.65	21.12
Mass of Wet Soil and Container	g	208.12	80.75	208.38	80.63	80.72
Accepted Dry mass + container	g	186.94	63.95	188.36	73.22	73.36
Water Content	%	15.6	38.0	14.6	13.8	14.1
Remarks						

Sample Location		TB-04	TB-07	TB-08	TB-06	TB-12
Sample ID		C	C	C	C	C
Depth	ft	7.0	7.0	7.0	7.0	7.0
Sample Type		SPT	SPT	SPT	SPT	SPT
Mass of Container	g	21.01	10.51	385.50	49.98	10.64
Mass of Wet Soil and Container	g	80.72	80.59	541.80	206.60	80.81
Accepted Dry mass + container	g	73.48	76.38	510.30	188.34	72.04
Water Content	%	13.8	6.4	25.2	13.2	14.3
Remarks						

Technician
mvanweelden

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Determination of Water Content (Moisture) of Soil and Rock by Mass

(ASTM D2216)

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Client Spalding DeDecker
 Date 10/9/2024

Sample Location		TB-09	TB-07	TB-16	TB-15	TB-07
Sample ID		H	H	H	I	I
Depth	ft	19.5	19.5	19.5	22.0	22.0
Sample Type		SPT	SPT	SPT	SPT	SPT
Mass of Container	g	10.64	10.67	32.14	10.54	10.53
Mass of Wet Soil and Container	g	82.81	82.63	199.84	82.95	82.42
Accepted Dry mass + container	g	74.32	73.71	181.92	74.34	72.82
Water Content	%	13.3	14.1	12.0	13.5	15.4
Remarks						

Sample Location		TB-06	TB-09	TB-07	TB-16	TB-18
Sample ID		I	J	J	J	J
Depth	ft	22.0	23.5	23.5	23.5	23.5
Sample Type		SPT	SPT	SPT	SPT	SPT
Mass of Container	g	10.52	34.44	10.62	10.52	21.17
Mass of Wet Soil and Container	g	82.55	199.92	82.41	82.40	90.81
Accepted Dry mass + container	g	74.04	179.58	73.03	74.78	81.13
Water Content	%	13.4	14.0	15.0	11.9	16.1
Remarks						

Sample Location						
Sample ID						
Depth	ft					
Sample Type						
Mass of Container	g					
Mass of Wet Soil and Container	g					
Accepted Dry mass + container	g					
Water Content	%					
Remarks						

Technician mvanweelden
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 mvanweelden



Organic Content

ASTM D2974

Project Name 40th Street Reconstruction
 Job Number 2024.1758
 Client Spalding DeDecker
 Date 10/8/2024

Sample Location		TB-13	TB-08		
Sample ID		A	C		
Depth	ft	2.0	7.0		
Sample Type		SPT	SPT		

Material Description	SAND - slightly compact dark brown fine to medium clayey	CLAY - soft gray sandy with a trace of silt and peat		
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Container Weight	g	328.5	385.5		
Weight of Wet Soil & Container	g	618.6	541.8		
Weight of Dry Soil & Container	g	579.9	510.3		
Weight of Burnt Soil & Container	g	576.6	507.7		
Weight of Wet Soil	g	290.1	156.3		
Weight of Dry Soil	g	251.4	124.8		
Weight of Burnt Soil	g	248.1	122.2		
Percent Moisture		15.4%	25.2%		
Organic Content		1.3%	2.1%		

Remarks					
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Sample Location					
Sample ID					
Depth	ft				
Sample Type					

Material Description					
----------------------	--	--	--	--	--

Container Weight	g				
Weight of Wet Soil & Container	g				
Weight of Dry Soil & Container	g				
Weight of Burnt Soil & Container	g				
Weight of Wet Soil	g				
Weight of Dry Soil	g				
Weight of Burnt Soil	g				
Percent Moisture					
Organic Content					

Remarks					
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Technician
mvanweelden

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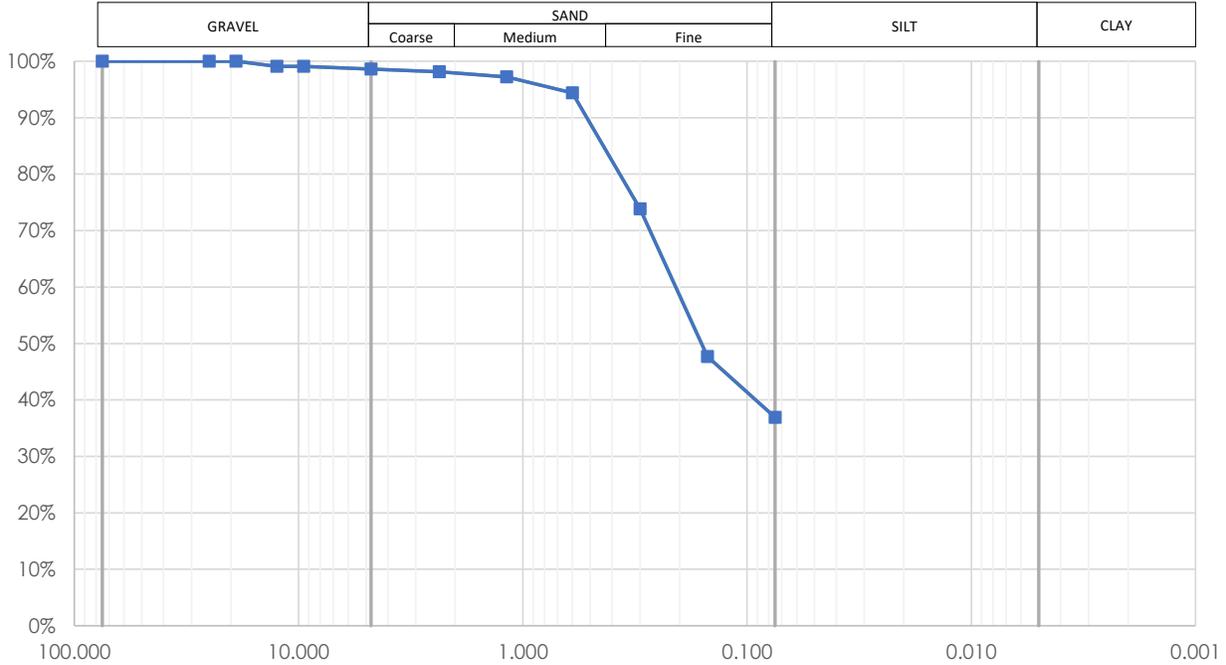


Particle Size Distribution Report

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Client Spalding DeDecker
 Date 10/9/2024
 Sample Location TB-05

Sample ID A

Depth (ft) 2.0



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0%	0.0%	1.4%	0.8%	15.4%	45.5%	0.0%	0.0%
D85	D60	D50	D30	D15	D10	Loss By Wash	
0.4630	0.2207	0.1634	0.0609	0.0305	0.0203	36.9%	

Particle Size	
Sieve	% Passing
3 in.	100%
1 in.	100%
3/4 in.	100%
1/2 in.	99%
3/8 in.	99%
No. 4	99%
No. 8	98%
No. 16	97%
No. 30	94%
No. 50	74%
No. 100	48%
No. 200	36.9%

Hydrometer	
Particle Size (mm)	% Passing

Material Description
Fine to Medium Clayey SAND (SC)

Remarks

Technician
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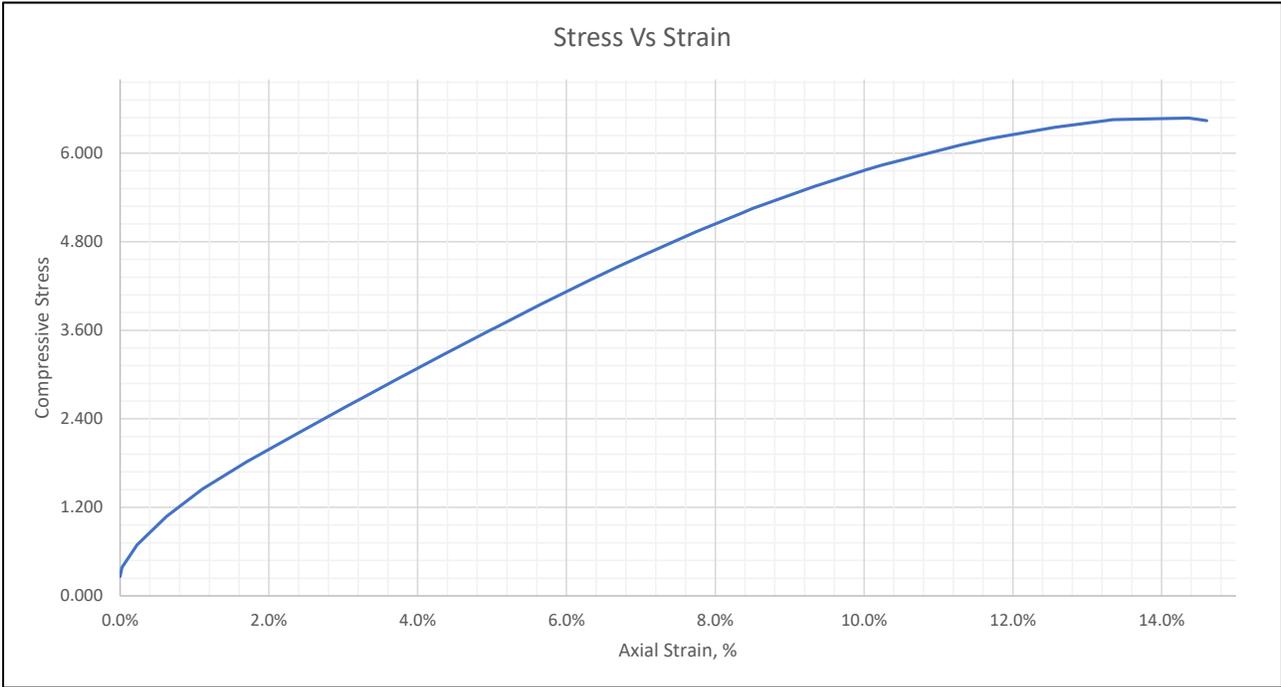
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Unconfined Compressive Strength ASTM D2166

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Date 10/9/2024
 Client Spalding DeDecker
 Sample Location TB-17 Sample ID B Depth (ft) 4.5



Sample ID	B
Unconfined Strength (tsf)	6.475
Undrained Shear Strength (tsf)	3.238
Failure Strain (%)	14.3%
Strain Rate, (in/min)	0.055
Moisture Content	13.7%
Wet Density (pcf)	138.5
Dry Density (pcf)	121.8
Void Ratio	0.3733
Saturation (%)	98.6%
Specimen Diameter (in)	1.35
Specimen Height (in)	3.04
Height/Diameter Ratio	2.25

Remarks

Technician
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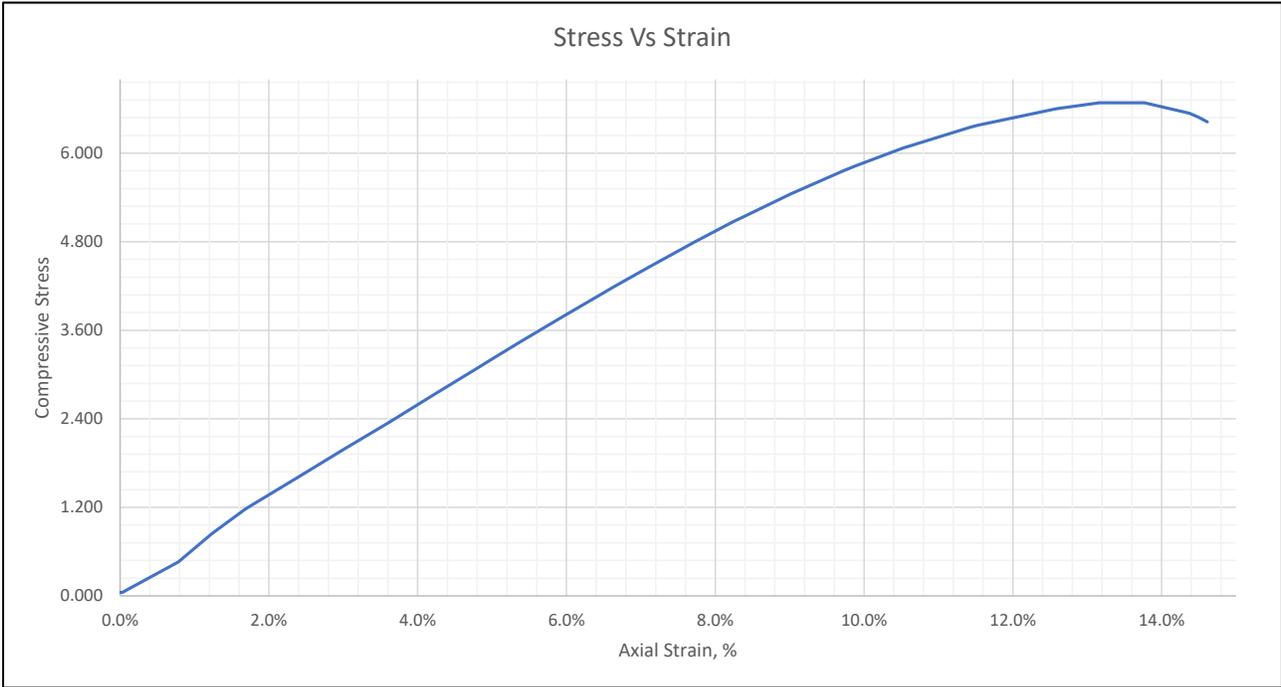
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Unconfined Compressive Strength ASTM D2166

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Date 10/9/2024
 Client Spalding DeDecker
 Sample Location TB-07 Sample ID B Depth (ft) 4.5



Sample ID	B
Unconfined Strength (tsf)	6.683
Undrained Shear Strength (tsf)	3.341
Failure Strain (%)	13.8%
Strain Rate, (in/min)	0.055
Moisture Content	13.0%
Wet Density (pcf)	139.3
Dry Density (pcf)	123.3
Void Ratio	0.3562
Saturation (%)	97.9%
Specimen Diameter (in)	1.36
Specimen Height (in)	3.08
Height/Diameter Ratio	2.26

Remarks

Technician
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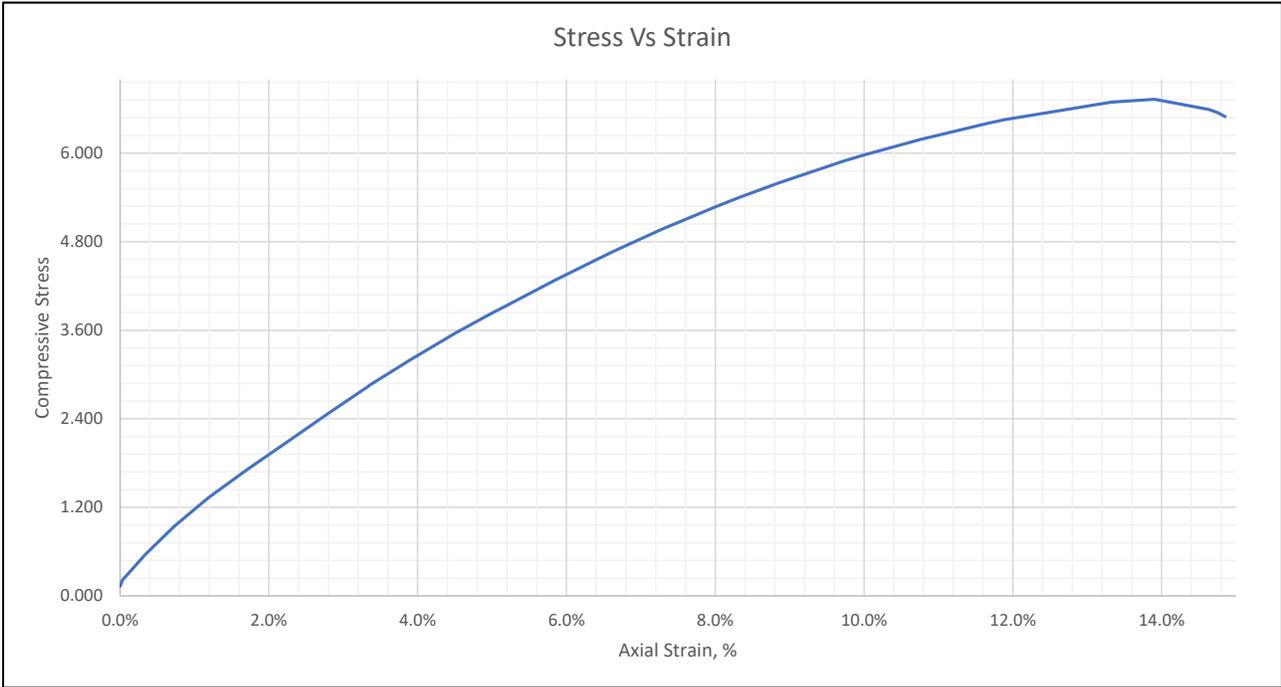
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Unconfined Compressive Strength ASTM D2166

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Date 10/9/2024
 Client Spalding DeDecker
 Sample Location TB-03 Sample ID B Depth (ft) 4.5



Sample ID	B
Unconfined Strength (tsf)	6.730
Undrained Shear Strength (tsf)	3.365
Failure Strain (%)	13.9%
Strain Rate, (in/min)	0.055
Moisture Content	15.6%
Wet Density (pcf)	135.8
Dry Density (pcf)	117.4
Void Ratio	0.4241
Saturation (%)	98.6%
Specimen Diameter (in)	1.36
Specimen Height (in)	3.03
Height/Diameter Ratio	2.23

Remarks

Technician
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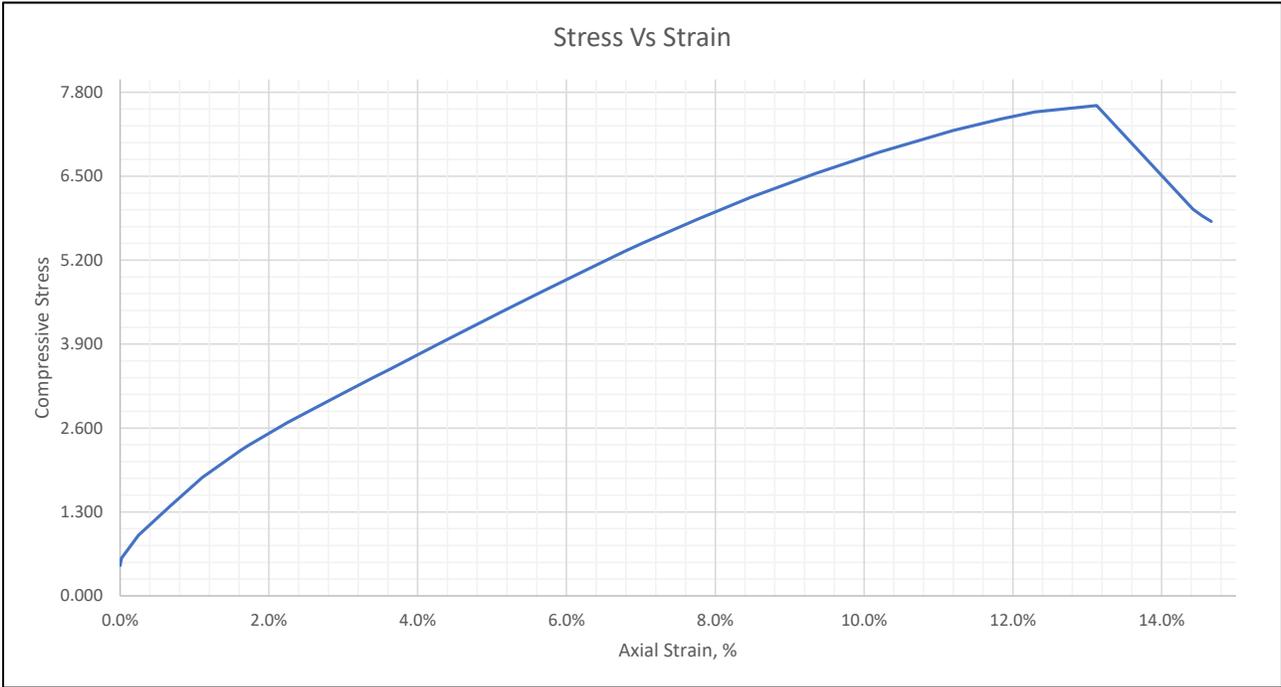
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Unconfined Compressive Strength ASTM D2166

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Date 10/9/2024
 Client Spalding DeDecker
 Sample Location TB-02 Sample ID B Depth (ft) 4.5



Sample ID	B
Unconfined Strength (tsf)	7.595
Undrained Shear Strength (tsf)	3.797
Failure Strain (%)	13.1%
Strain Rate, (in/min)	0.055
Moisture Content	14.6%
Wet Density (pcf)	137.3
Dry Density (pcf)	119.8
Void Ratio	0.3956
Saturation (%)	98.9%
Specimen Diameter (in)	1.36
Specimen Height (in)	3.00
Height/Diameter Ratio	2.21

Remarks

Technician
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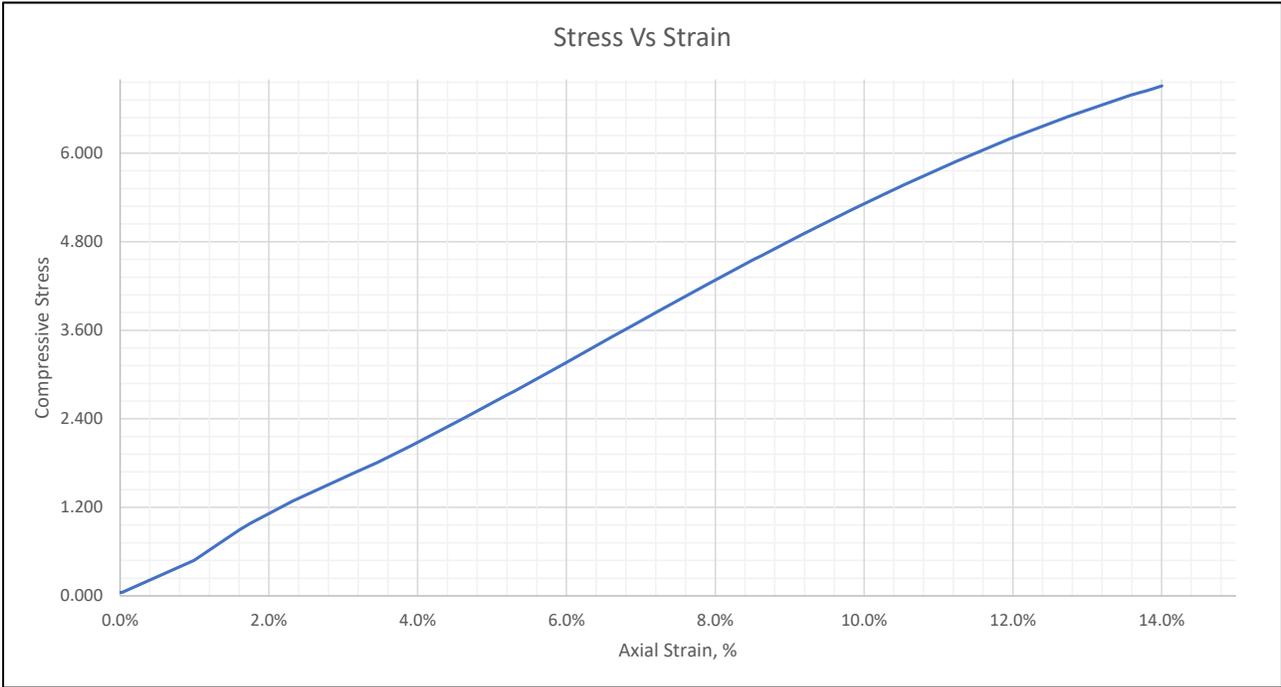
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Unconfined Compressive Strength ASTM D2166

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Date 10/9/2024
 Client Spalding DeDecker
 Sample Location TB-06 Sample ID C Depth (ft) 7.0



Sample ID	C
Unconfined Strength (tsf)	6.911
Undrained Shear Strength (tsf)	3.456
Failure Strain (%)	14.0%
Strain Rate, (in/min)	0.055
Moisture Content	13.2%
Wet Density (pcf)	139.2
Dry Density (pcf)	123.0
Void Ratio	0.3597
Saturation (%)	98.3%
Specimen Diameter (in)	1.36
Specimen Height (in)	2.95
Height/Diameter Ratio	2.17

Remarks

Technician
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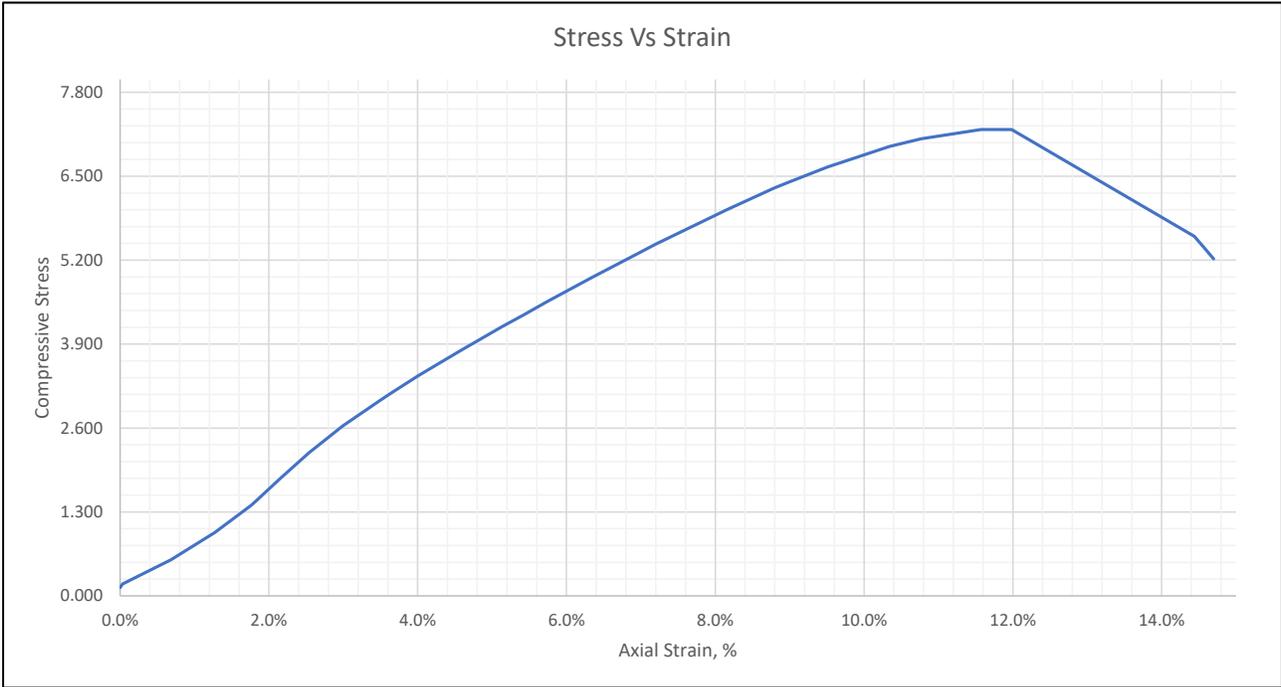
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Unconfined Compressive Strength ASTM D2166

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Date 10/9/2024
 Client Spalding DeDecker
 Sample Location TB-16 Sample ID C Depth (ft) 7.0



Sample ID	C
Unconfined Strength (tsf)	7.223
Undrained Shear Strength (tsf)	3.612
Failure Strain (%)	11.6%
Strain Rate, (in/min)	0.055
Moisture Content	12.9%
Wet Density (pcf)	139.6
Dry Density (pcf)	123.6
Void Ratio	0.3526
Saturation (%)	98.3%
Specimen Diameter (in)	1.35
Specimen Height (in)	2.81
Height/Diameter Ratio	2.08

Remarks

Technician
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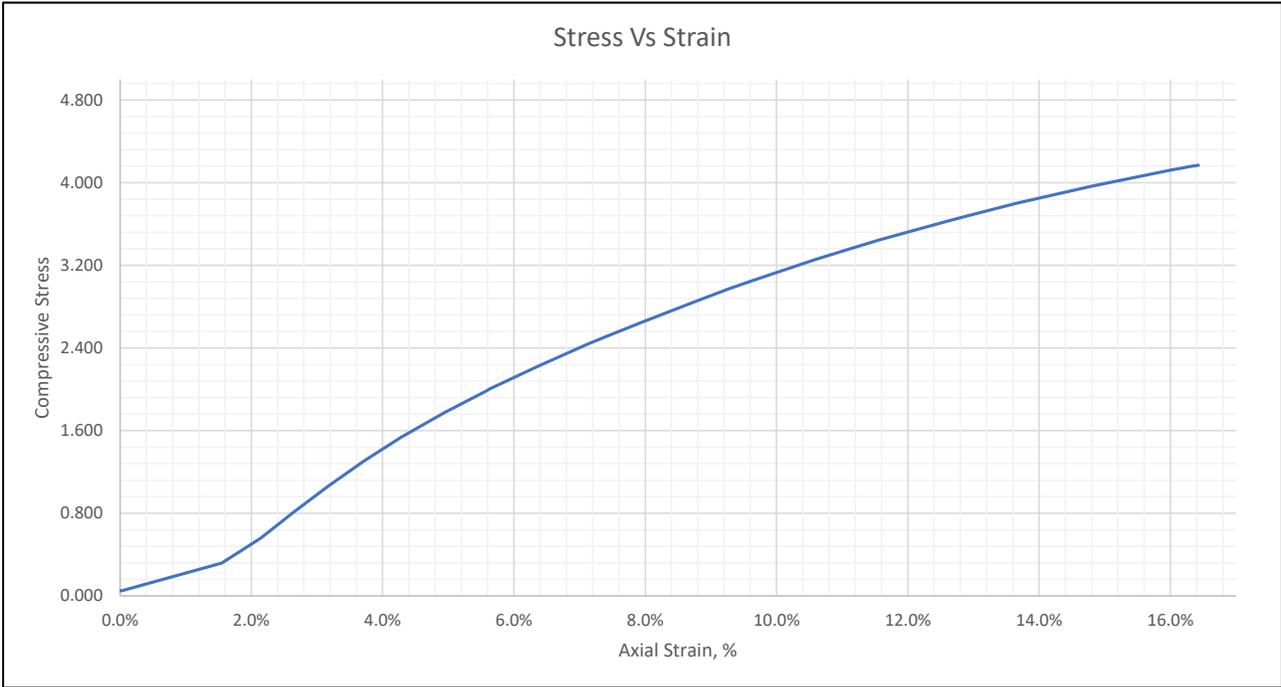
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Unconfined Compressive Strength ASTM D2166

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Date 10/9/2024
 Client Spalding DeDecker
 Sample Location TB-18 Sample ID D Depth (ft) 9.5



Sample ID	D
Unconfined Strength (tsf)	4.169
Undrained Shear Strength (tsf)	2.084
Failure Strain (%)	16.4%
Strain Rate, (in/min)	0.055
Moisture Content	12.2%
Wet Density (pcf)	147.6
Dry Density (pcf)	131.5
Void Ratio	0.2716
Saturation (%)	120.7%
Specimen Diameter (in)	1.35
Specimen Height (in)	2.74
Height/Diameter Ratio	2.03

Remarks

Technician
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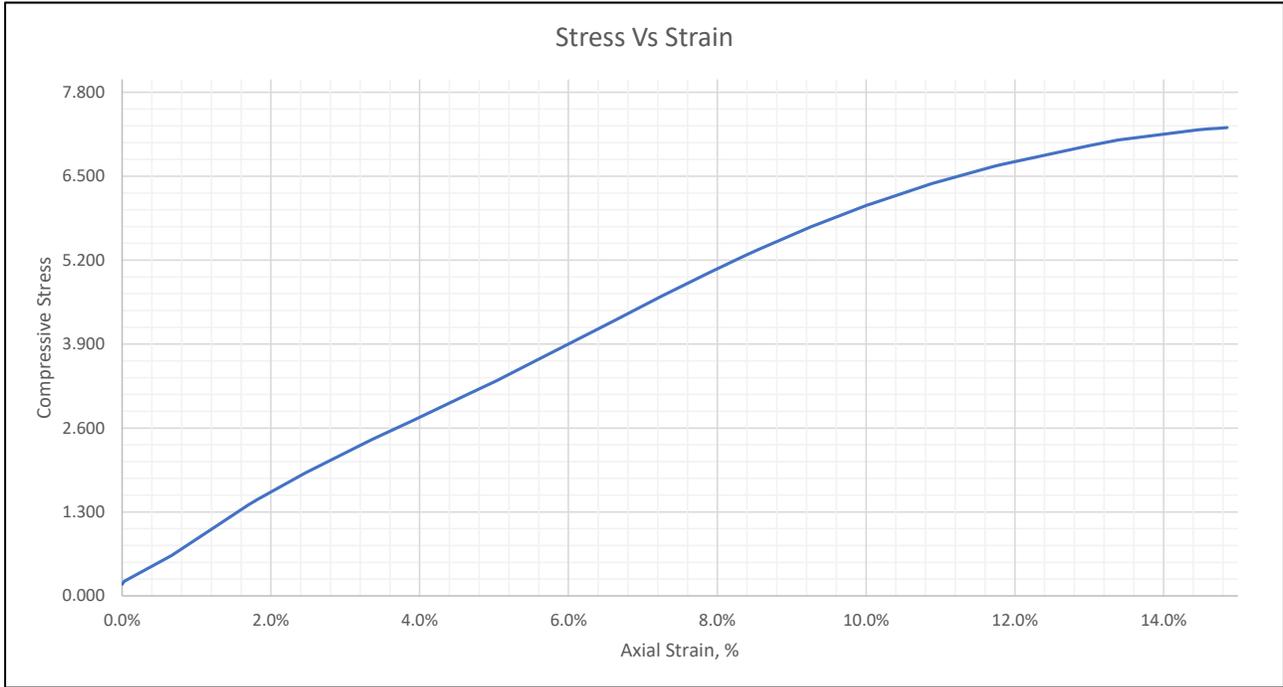
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Unconfined Compressive Strength ASTM D2166

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Date 10/9/2024
 Client Spalding DeDecker
 Sample Location TB-07 Sample ID D Depth (ft) 9.5



Sample ID	D
Unconfined Strength (tsf)	7.253
Undrained Shear Strength (tsf)	3.626
Failure Strain (%)	14.9%
Strain Rate, (in/min)	0.055
Moisture Content	13.2%
Wet Density (pcf)	139.3
Dry Density (pcf)	123.1
Void Ratio	0.3586
Saturation (%)	98.7%
Specimen Diameter (in)	1.37
Specimen Height (in)	3.03
Height/Diameter Ratio	2.21

Remarks

Technician
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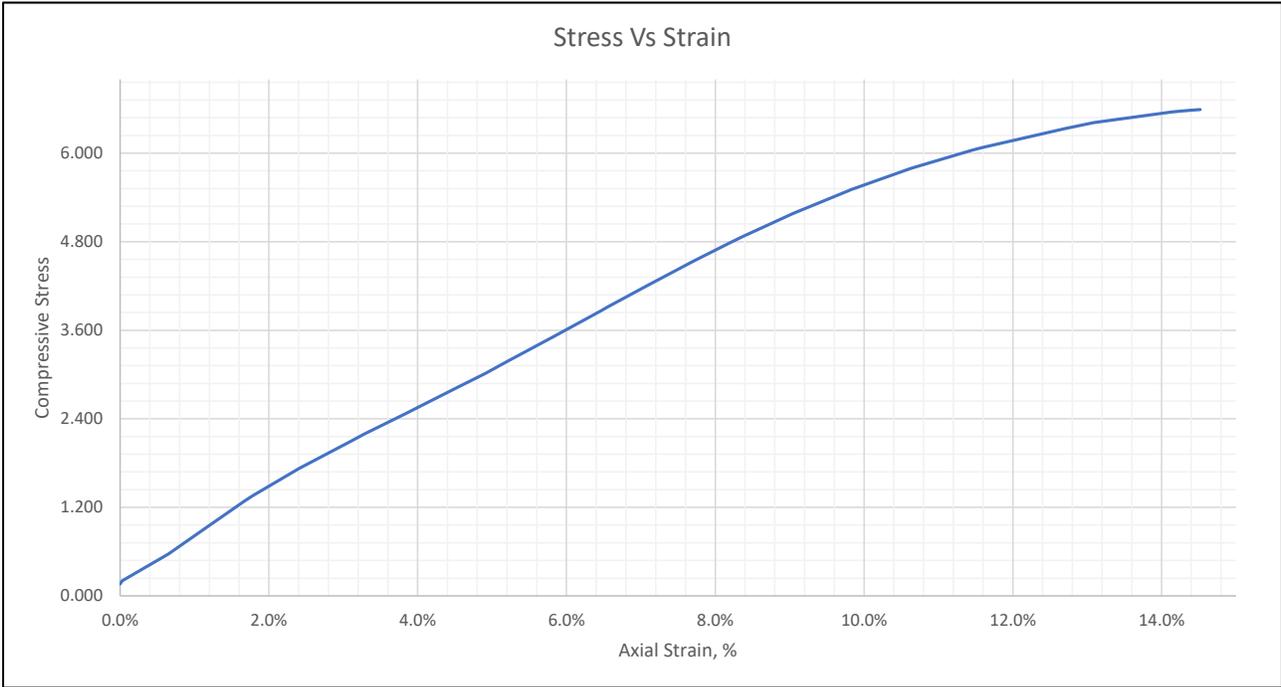
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Unconfined Compressive Strength ASTM D2166

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Date 10/9/2024
 Client Spalding DeDecker
 Sample Location TB-08 Sample ID E Depth (ft) 12.0



Sample ID	E
Unconfined Strength (tsf)	6.591
Undrained Shear Strength (tsf)	3.295
Failure Strain (%)	14.5%
Strain Rate, (in/min)	0.055
Moisture Content	13.7%
Wet Density (pcf)	138.2
Dry Density (pcf)	121.6
Void Ratio	0.3755
Saturation (%)	97.8%
Specimen Diameter (in)	1.44
Specimen Height (in)	3.10
Height/Diameter Ratio	2.15

Remarks

Technician
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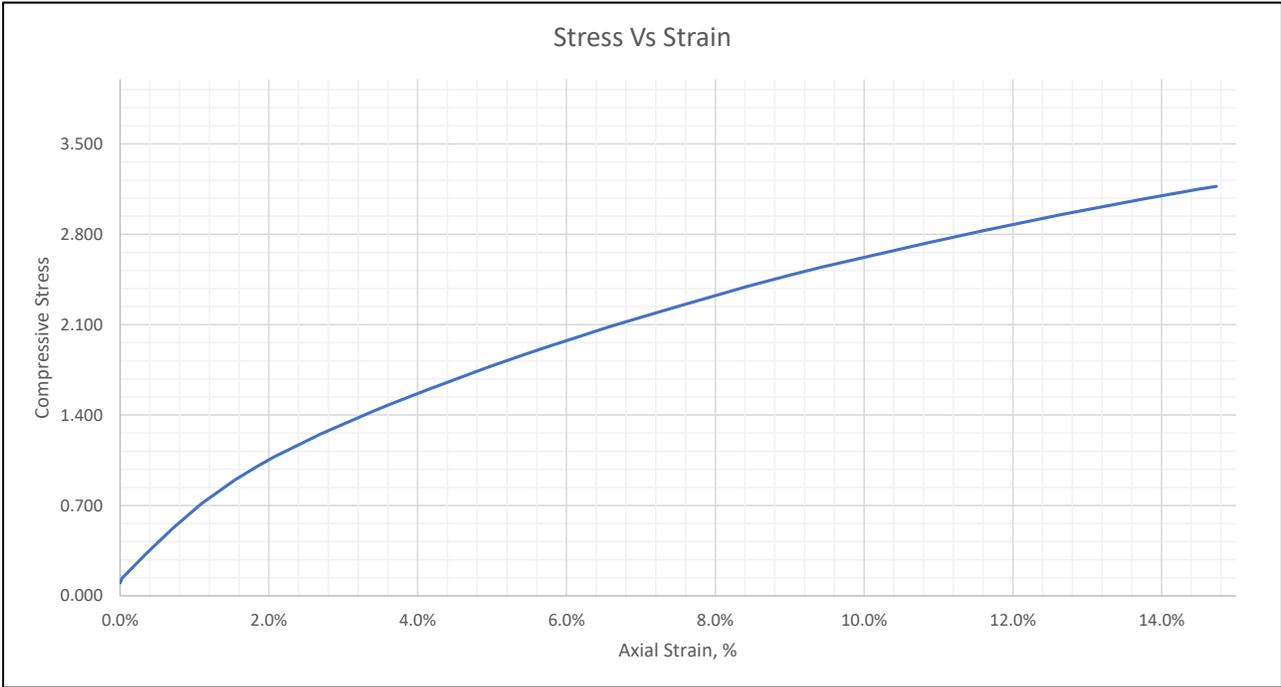
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Unconfined Compressive Strength ASTM D2166

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Date 10/9/2024
 Client Spalding DeDecker
 Sample Location TB-06 Sample ID F Depth (ft) 14.5



Sample ID	F
Unconfined Strength (tsf)	3.171
Undrained Shear Strength (tsf)	1.586
Failure Strain (%)	14.7%
Strain Rate, (in/min)	0.055
Moisture Content	13.7%
Wet Density (pcf)	138.4
Dry Density (pcf)	121.7
Void Ratio	0.3736
Saturation (%)	98.3%
Specimen Diameter (in)	1.37
Specimen Height (in)	2.81
Height/Diameter Ratio	2.05

Remarks

Technician
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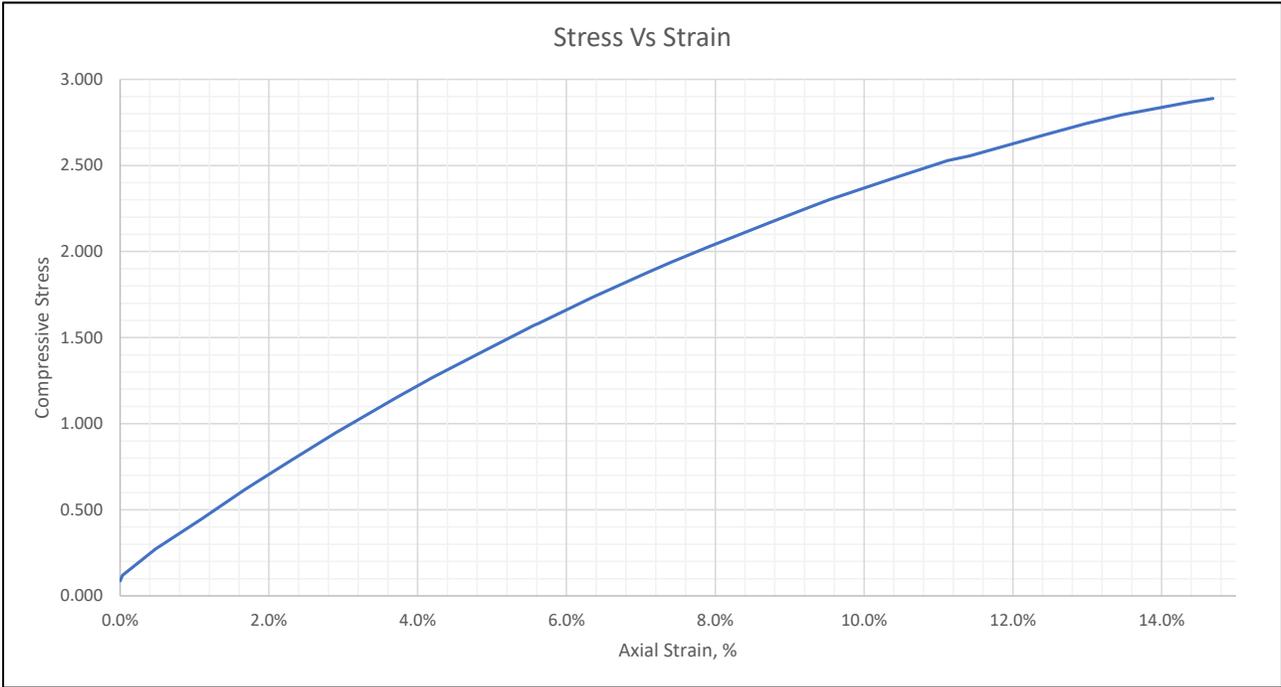
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Unconfined Compressive Strength ASTM D2166

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Date 10/9/2024
 Client Spalding DeDecker
 Sample Location TB-17 Sample ID F Depth (ft) 14.5



Sample ID	F
Unconfined Strength (tsf)	2.889
Undrained Shear Strength (tsf)	1.445
Failure Strain (%)	14.7%
Strain Rate, (in/min)	0.055
Moisture Content	12.4%
Wet Density (pcf)	140.5
Dry Density (pcf)	125.0
Void Ratio	0.3377
Saturation (%)	98.4%
Specimen Diameter (in)	1.35
Specimen Height (in)	2.73
Height/Diameter Ratio	2.02

Remarks

Technician
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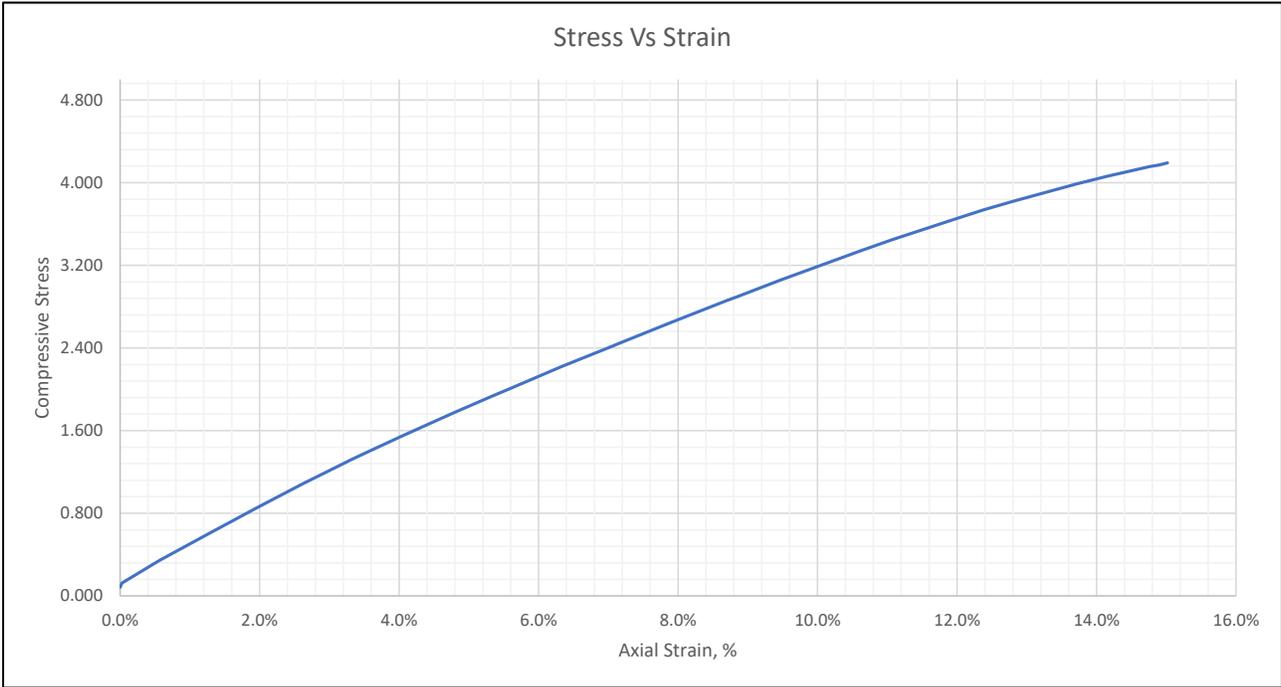
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Unconfined Compressive Strength ASTM D2166

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Date 10/9/2024
 Client Spalding DeDecker
 Sample Location TB-15 Sample ID G Depth (ft) 17.0



Sample ID	G
Unconfined Strength (tsf)	4.192
Undrained Shear Strength (tsf)	2.096
Failure Strain (%)	15.0%
Strain Rate, (in/min)	0.055
Moisture Content	12.3%
Wet Density (pcf)	140.8
Dry Density (pcf)	125.4
Void Ratio	0.3341
Saturation (%)	98.6%
Specimen Diameter (in)	1.37
Specimen Height (in)	2.85
Height/Diameter Ratio	2.08

Remarks

Technician
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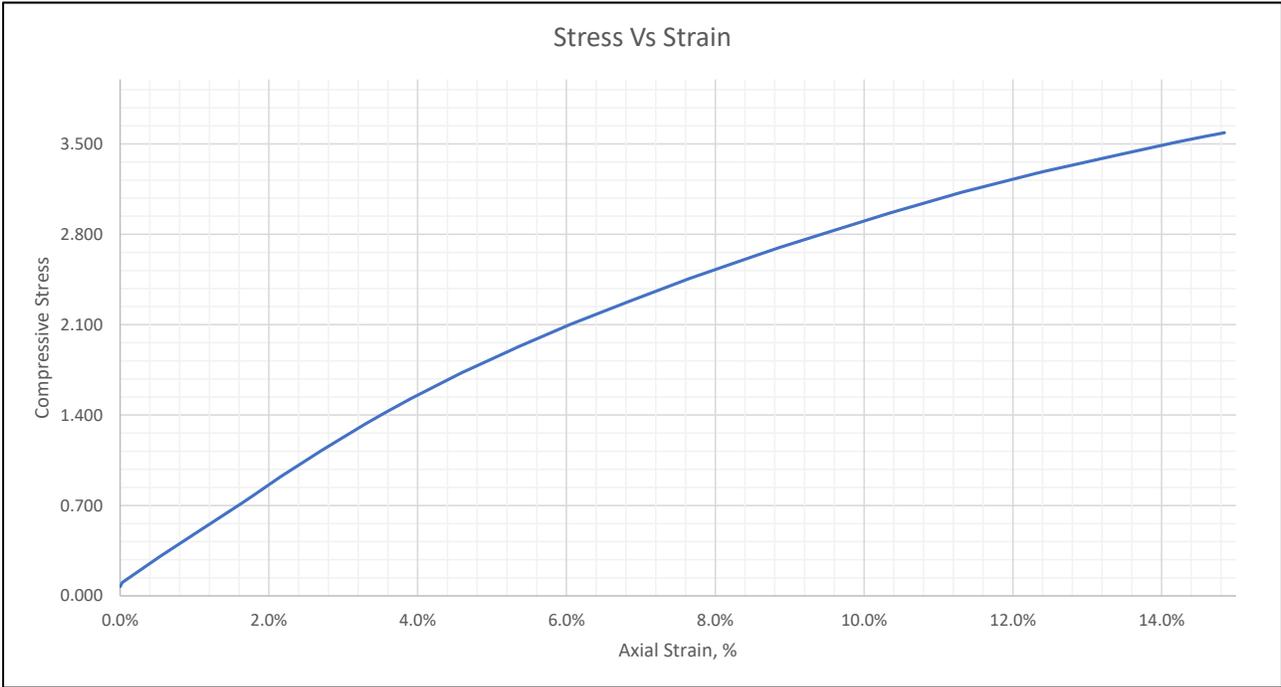
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Unconfined Compressive Strength ASTM D2166

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Date 10/9/2024
 Client Spalding DeDecker
 Sample Location TB-05 Sample ID F Depth (ft) 18.5



Sample ID	F
Unconfined Strength (tsf)	3.587
Undrained Shear Strength (tsf)	1.794
Failure Strain (%)	14.8%
Strain Rate, (in/min)	0.055
Moisture Content	12.3%
Wet Density (pcf)	140.8
Dry Density (pcf)	125.4
Void Ratio	0.3341
Saturation (%)	98.6%
Specimen Diameter (in)	1.37
Specimen Height (in)	2.85
Height/Diameter Ratio	2.08

Remarks

Technician
mvanweelden

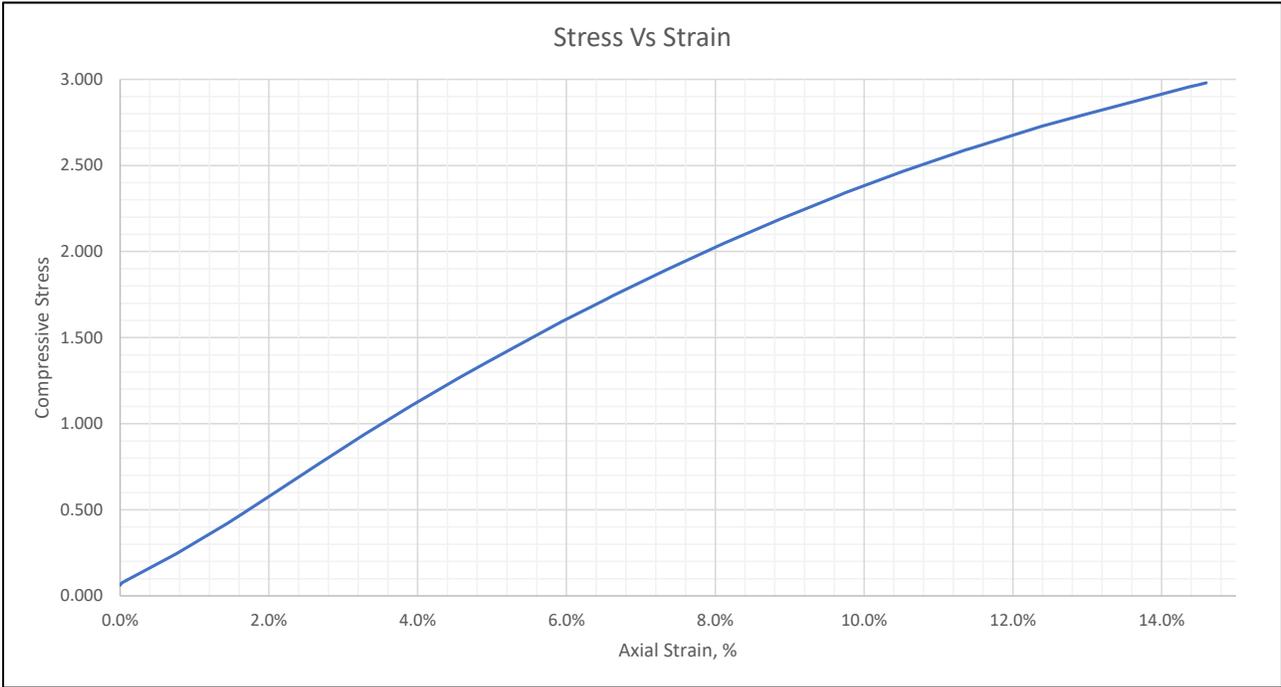
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Approved
mvanweelden



Unconfined Compressive Strength ASTM D2166

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Date 10/9/2024
 Client Spalding DeDecker
 Sample Location TB-16 Sample ID H Depth (ft) 19.5



Sample ID	H
Unconfined Strength (tsf)	2.980
Undrained Shear Strength (tsf)	1.490
Failure Strain (%)	14.6%
Strain Rate, (in/min)	0.055
Moisture Content	12.0%
Wet Density (pcf)	141.4
Dry Density (pcf)	126.3
Void Ratio	0.3241
Saturation (%)	98.9%
Specimen Diameter (in)	1.36
Specimen Height (in)	3.11
Height/Diameter Ratio	2.29

Remarks

Technician
mvanweelden

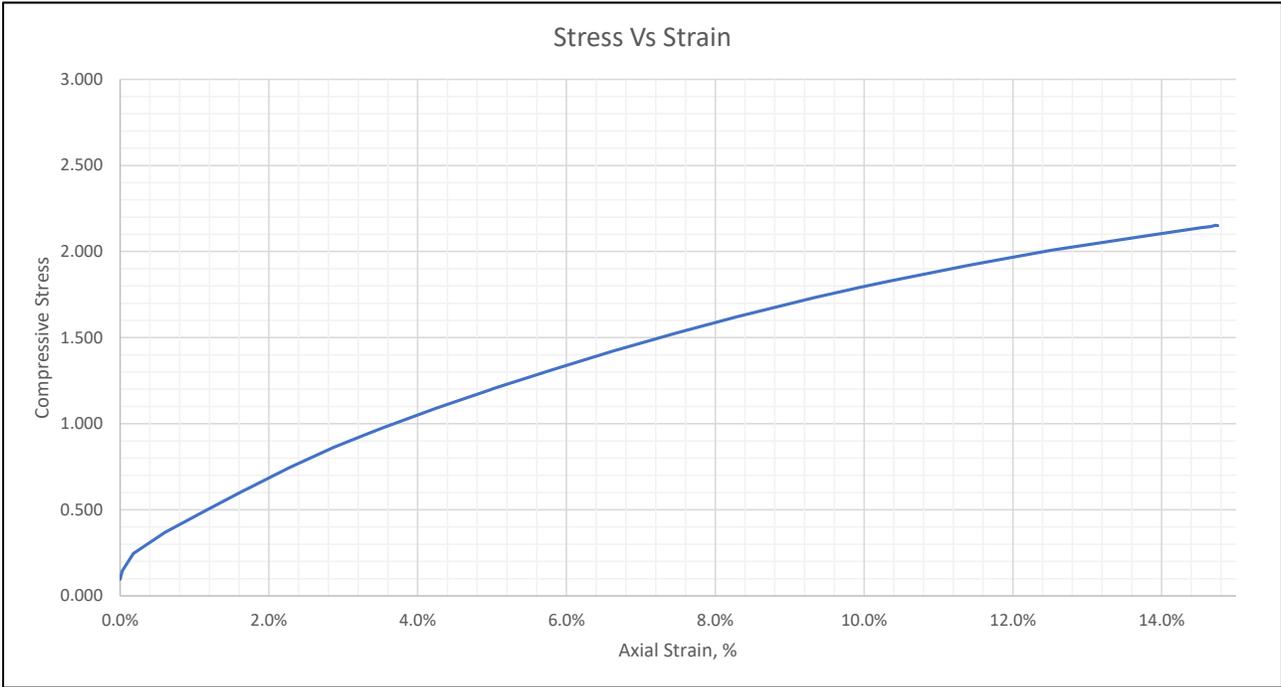
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Approved
mvanweelden



Unconfined Compressive Strength ASTM D2166

Project Name 40th Street Reconstruction
 Project Number 2024.1758
 Date 10/9/2024
 Client Spalding DeDecker
 Sample Location TB-09 Sample ID J Depth (ft) 23.5



Sample ID	J
Unconfined Strength (tsf)	2.152
Undrained Shear Strength (tsf)	1.076
Failure Strain (%)	14.7%
Strain Rate, (in/min)	0.055
Moisture Content	14.0%
Wet Density (pcf)	138.2
Dry Density (pcf)	121.2
Void Ratio	0.3798
Saturation (%)	98.9%
Specimen Diameter (in)	1.38
Specimen Height (in)	3.05
Height/Diameter Ratio	2.21

Remarks

Technician
mvanweelden

Checked

Approved
mvanweelden



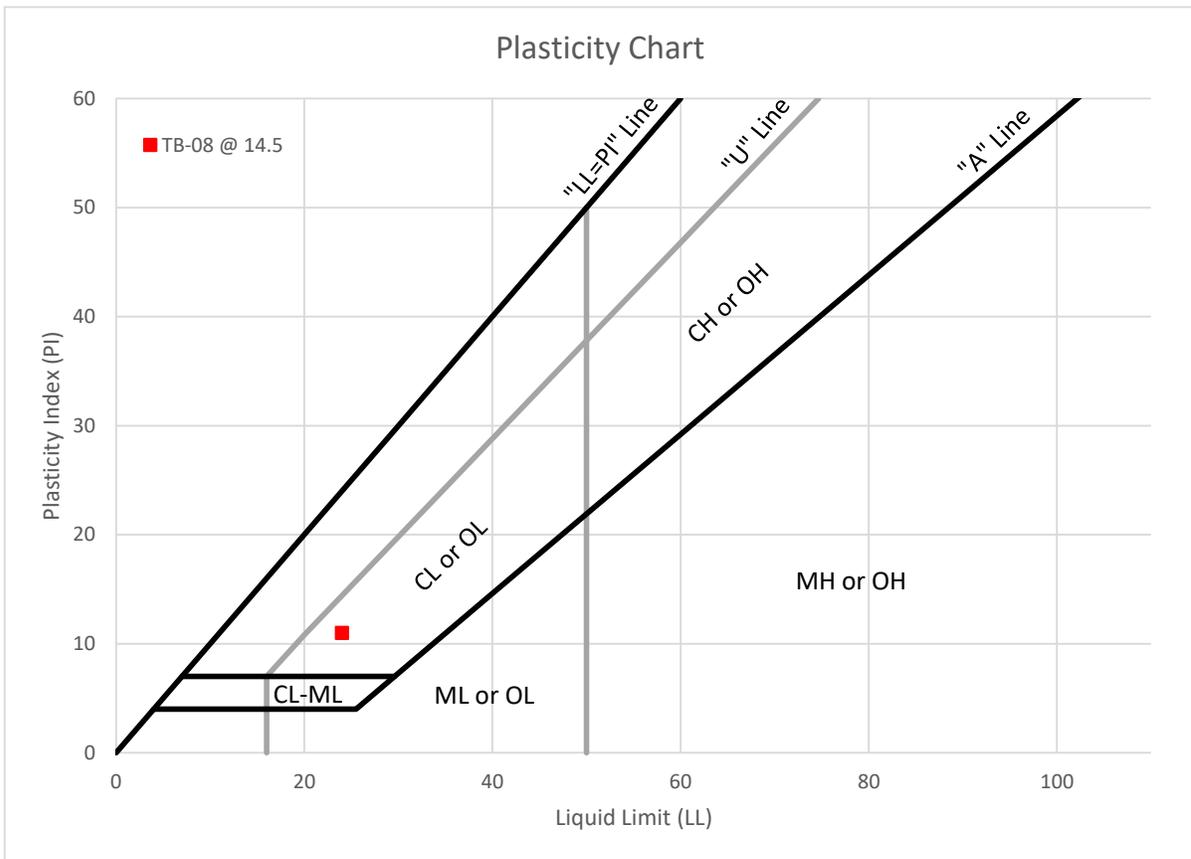
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX ASTM D4318-10, Multipoint Test

Project Name: 40th Street Reconstruction
 Project Number: 2024.1758
 Client: Spalding DeDecker
 Date: 10/9/2024
 Sample Location: TB-08 Sample ID: F Depth (ft): 14.5
 Sample Description:

	Liquid Limit			Plastic Limit	
	g	g	g	g	g
Mass of container	11.26	11.22	11.42	11.76	11.64
Mass of wet soil and container	42.30	42.54	37.54	18.86	18.34
Mass of dry soil and container	36.52	36.43	32.34	18.01	17.56
Water Content	%	22.88	24.24	24.86	13.60
				13.18	
				Average PL	
				13	

25 - 35	20 - 30	15 - 25
32	21	17

No. of blows, N



Remarks

LIQUID LIMIT	24
PLASTIC LIMIT	13
PLASTICITY INDEX	11

Technician
mvanweelden

Checked

Approved
mvanweelden



LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX ASTM D4318-10, Multipoint Test

Project Name: 40th Street Reconstruction
 Project Number: 2024.1758
 Client: Spalding DeDecker
 Date: 10/9/2024
 Sample Location: TB-18 Sample ID: F Depth (ft): 14.5
 Sample Description:

Liquid Limit

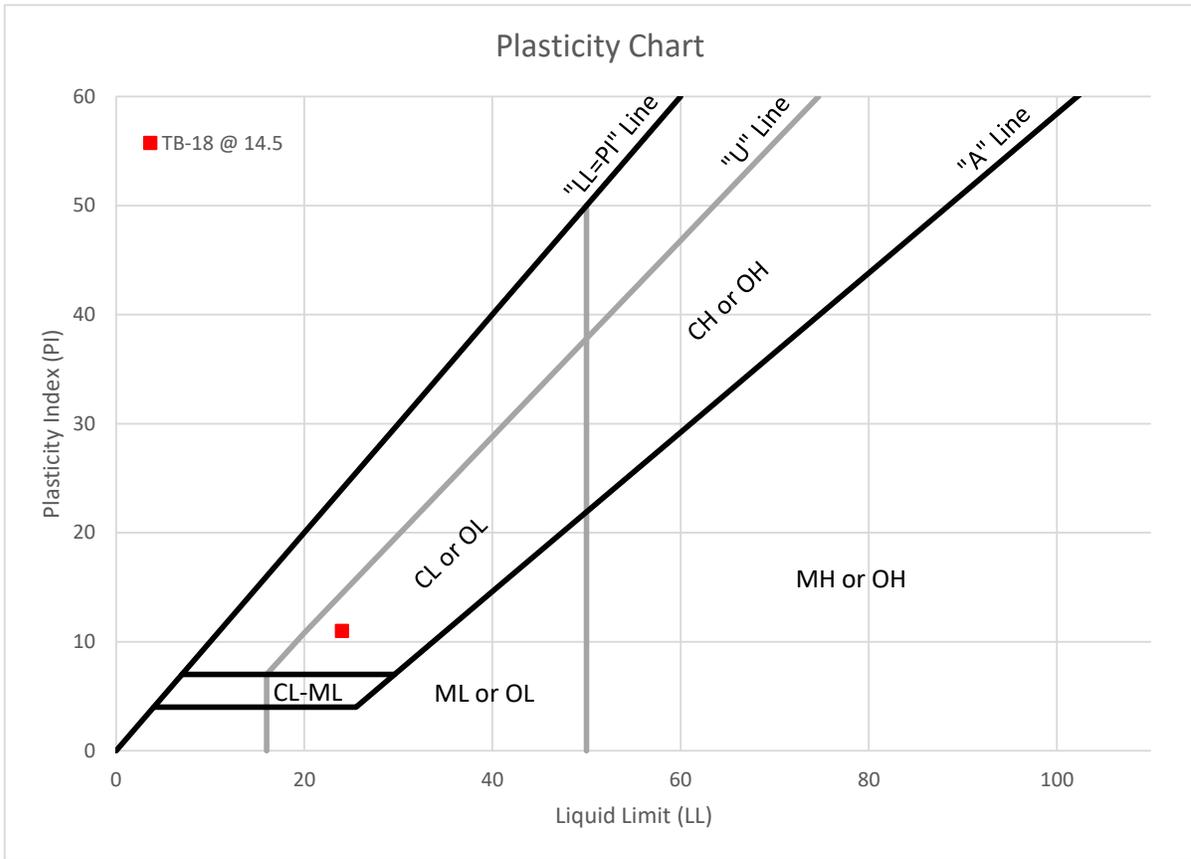
Mass of container	g	11.36	11.48	11.44
Mass of wet soil and container	g	38.90	43.12	38.74
Mass of dry soil and container	g	33.64	36.94	33.21
Water Content	%	23.61	24.27	25.40

Plastic Limit

11.60	11.62
18.86	18.22
18.01	17.44
13.26	13.40
Average PL	
13	

25 - 35	20 - 30	15 - 25
30	24	15

No. of blows, N



Remarks

LIQUID LIMIT	24
PLASTIC LIMIT	13
PLASTICITY INDEX	11

Technician
mvanweelden

Checked

Approved
mvanweelden

General Information for Method of Field Investigation

The soil investigation was performed in accordance with the American Society of Testing and Materials method ASTM D 1586, which is the "Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils". Samples of compressible clays or organic soils are obtained in accordance with ASTM D 1587, which is the "Standard Practice for Thin-Walled Tube Sampling of Soils for Geotechnical Purposes." Rock may be cored in conjunction with the above methods as specified in ASTM D 2113 which is the "Standard Practice for Rock Core Drilling and Sampling of Rock for Site Investigation."

Field Testing

Standard Penetration Tests (SPT) in accordance with ASTM D 1586 were generally performed at depths of 2.0', 4.5', 7.0', 9.5' and 5.0' intervals thereafter.

Laboratory Testing

Samples obtained from the Standard Penetration Test, ASTM D 1586 or thin walled tube method, ASTM D 1587, were tested in the laboratory for the moisture content and density and/or particle size, where applicable. When soils sampled possessed sufficient cohesive properties, it was tested for its compressive strength in the unconfined state.

Natural Percent Moisture content (N.P.M.) of the soil is the percentage by weight of water contained in the soil sample compared to the dry weight of the solids of which the soil is composed. The NPM of select samples is determined in accordance with ASTM D 2216.

Natural Density (N.D.) of soil as reported on the appended boring logs is the natural wet density of the soils expressed in pounds per cubic foot.

The unconfined compressive strength of cohesive soils is determined in the laboratory on "undisturbed" select samples in accordance with ASTM D 2166. This test determines the maximum load required at a specified rate to deform the cohesive soil specimen length twenty (20%) percent. The primary purpose of the unconfined compression test is to obtain approximate quantitative values of the compressive strength of soils possessing sufficient coherence to permit testing in the unconfined state. The shear strength of the cohesive soil can be calculated from the results of the unconfined compressive strength test.

Color

When the color of the soils is uniform throughout, the color recorded will be such as brown, gray, and black and may be modified by adjectives such as light and dark. If the soils predominant color is shaded by secondary color, the secondary color precedes the primary color, such as gray-brown, or yellow-brown. If two major and distinct colors are swirled throughout the soil, the colors will be modified by the term mottled; such as mottled brown and gray.

Water Observations

Depth of water recorded in the test boring is measured from the ground surface to the water surface. Initial depth indicates water level during boring, completing depth indicates water level immediately after boring, and depth after "X" number of hours indicates water level after allowing the groundwater rise or fall over a period of time. Water observations in pervious soils are considered reliable groundwater levels for accurate groundwater measurements at the time the test borings were performed unless records are made over several days' time. Factors such as weather, soils porosity, etc., will cause the groundwater level to fluctuate for both pervious and impervious soils.

Sample Type

If not otherwise indicated, the sample is a split-barrel liner sample ASTM D 1586.

"S.T." – Shelby tube sample, ASTM D 1587
"A" – disturbed augered sample
"C" – rock core sampled ASTM D 2113
N.P.M. – Natural Percent Moisture of in-situ soils sample
N.D. – Natural Density of in-situ soils sample in pcf.
S.S. – Shear Strength of cohesive soils samples as determined by the Unconfined Compression tests in ksf.

Classification Data – Laboratory data to assist in classification of soils and classification of soils characteristics; i.e., plastic limit or liquid limit

Test Boring Logs

Particle Size	Visual
Boulders	Larger than 12" (300 mm)
Cobbles	12" to 3" (300 to 75 mm)
Gravel - Coarse	3" to ¾" (75 to 19 mm)
Gravel - Fine	19.0 to 4.75 mm
Sand- Coarse	4.75 to 2.0 mm
Sand - Medium	2.0 to 0.425 mm
Sand - Fine	0.425 to 0.075 mm
Silt	0.075 to 0.002 mm
Clay	0.002 mm and smaller

Soils Components

Major Component	Minor Component
Gravel	Trace (1 - 10%)
Sand	Some (11 - 35%)
Silt/Clay	And (36 - 50%)

Condition of Soil Relative to Compactness

Granular Material	"N" Value
Loose	0 - 4
Slightly Compact	5 - 7
Compact	8 - 20
Very Compact	21 - 50
Extremely Compact	51 and above

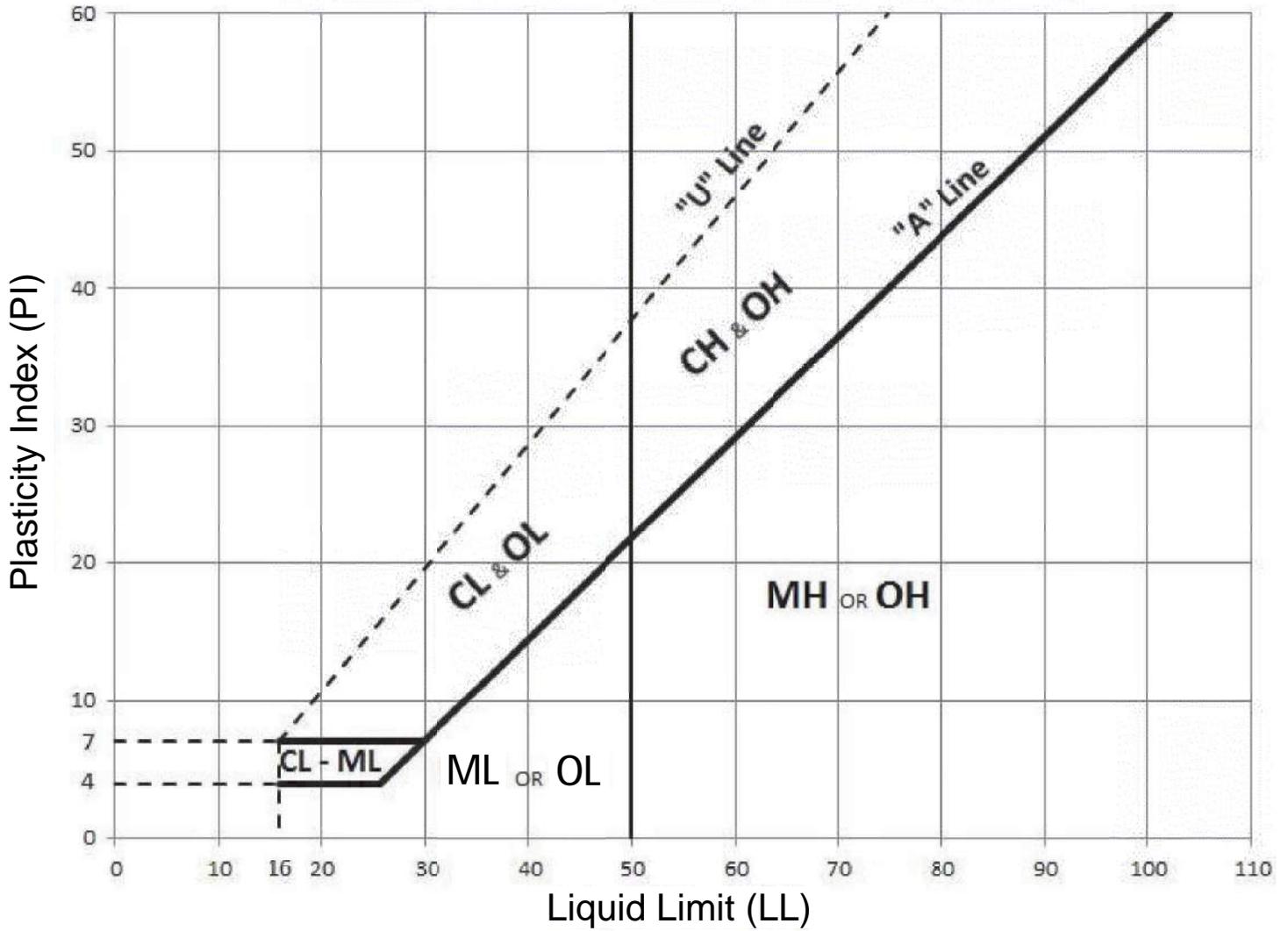
Cohesive Material	"N" Value
Soft	0 - 4
Firm	5 - 7
Stiff	8 - 20
Very Stiff	21 - 50
Extremely Stiff	51 and above

"N" values in clay soils are not to be used as a measure of shear strength. However, they may be used as a general indication of strength.

Unified Soil Classification System Chart

Major Divisions			Letter Symbol	Typical Descriptions
Coarse Grained Soils	Gravel – Gravelly Soils	Clean gravels (little or no fines)	GW	Well-Graded gravels, gravel-sand mixtures, little or no fines
			GP	Poorly-Graded gravels, gravel-sand mixtures, little or no fines
		Gravel with Fines (appreciable amount of fines)	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sand and Sandy Soils	Clean Sand (little or no fines)	SW	Well-Graded sands, gravelly sands, little or no fines
			SP	Poorly-Graded sands, gravelly sands, little or no fines
		Sand with Fines (appreciable amount of fines)	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
Fine Grained Soils	Silts and Clays	Liquid limit less than 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays or low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays or low plasticity
	Silts and Clays	Liquid limit greater than 50	MH	Inorganic silts, micaceous or diatomaceous fine sand or silty soils
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays or medium to high plasticity, organic silts
	Highly organic soils		PT	Peat, humus, swamp soils with high organic contents

For Laboratory Classification of Fine Grained Soil
Plasticity Chart



PROJECT MANUAL

Appendix C

HBPW GIS Utility Map



Legend

- Force Main
- Gravity Main
- Interceptor
- Sewer Services
- Distribution Main
- Hydrant Branch
- Transmission Main
- Watermain Valves
- Hydrants

	DATE	NAME	PROJECT TITLE: 40th St - LG Improvements	PROJECT NUMBER: SWR102 WR97	
PROPOSED	12/1/2025	bcarlstrom	Comments:		
AS BUILT CHANGE / NONE					

DISCLAIMER: THIS PRODUCT WAS PREPARED FOR THE CITY OF HOLLAND BOARD OF PUBLIC WORKS' USE. IT IS NOT GUARANTEED FOR OTHER USES. Holland Board of Public Works, 625 Hastings Ave. Holland, MI 49423



- ### Legend
- Sewer Main**
- Force Main
 - Gravity Main
 - Interceptor
 - Sewer Services
- Watermain**
- Distribution Main
 - Hydrant Branch
 - Watermain Valves
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	DATE	NAME	PROJECT TITLE: 40th St - LG Improvements	PROJECT NUMBER: SWR102 WR97	
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DISCLAIMER: THIS PRODUCT WAS PREPARED FOR THE CITY OF HOLLAND BOARD OF PUBLIC WORKS' USE. IT IS NOT GUARANTEED FOR OTHER USES. Holland Board of Public Works, 625 Hastings Ave. Holland, MI 49423

PROJECT MANUAL

Appendix D

Permits

PERMIT FOR WATER SUPPLY SYSTEMS

(Construction – Alteration – Addition or Improvement) as Described Herein
*Required under the Authority of 1976 PA 399, as amended (Act 399)**

Water System Project:

Water Supply Name: HOLLAND BOARD OF PUBLIC WORKS
Public Water Supply ID: MI0003190
Project Name: 40th St Reconstructions
Project Purpose: Replacement
Project Location: Holland
Project County: Allegan

Permit Number: ACT-429921
Issued Date: 12/9/2025
Expiration Date: 12/9/2027

This permit only authorizes the construction and/or alteration of the waterworks system as described below and detailed in the approved drawings and specifications in accordance with Part 13 of the Administrative Rules of Act 399.

**ISSUED UNDER THE AUTHORITY OF THE DIRECTOR OF
THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY**

Reviewed by: Emily Wright

Issued by: Emily Wright

This permit expires if construction or alteration has not commenced by the expiration date, 12/9/2027, in accordance with R 325.11306.

Requests for extension of this permit may be made in [MiEHDWIS](#) Construction Permit Activity ACT-429921 or by contacting your EGLE representative.

Facilities Description:

3,267 ft of watermain and service lead replacement on 40th St from Industrial Ave to Waverly Rd. The existing watermain crossing CSX railroad will be lined. A new service stub will be constructed at the LG site East of Waverly. The basis of design for the new facility will be included in the developer's permit.

Conditions:

From STA 18+50 to STA 39+00, FKM gaskets shall be used on all water main joints. For all other locations, nitrile gaskets shall be used where storm and sanitary sewer structures are within 10 ft of water main joints.

40th St Reconstructions Facilities

Mains

Length (ft)	Size (in)	Material	Construction Type	Comments
3267	12	DI	Replacement or Rehabilitation	Installed along 40th St from Industrial Ave to Waverly Rd

Tanks

Volume (GL)	Tank Type	Construction Type	Comments
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Wells

Diameter (in)	Depth (ft)	Capacity (GPM)	Pump Type	Construction Type	Comments
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Pumps

Total Dynamic Head (TDH)	Capacity at TDH (GPM)	Pump Type	Number of Pumps	Construction Type	Comments
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Treatment Processes

Construction Type	Treatment	Comments
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Other Facilities

Type of Facility	Description
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* This Act 399 Permit is issued under the authority of the Director of the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and allows the construction and/or alteration of the water system as described herein in accordance with Part 13 of the Administrative Rules of Act 399.

The issuance of this permit does not authorize violation of any federal, state, or local laws or regulations, nor does it obviate the necessity of obtaining such permits, including any other EGLE permits, or approvals from other units of government as may be required by law.

This permit expires if construction or alteration has not commenced by the expiration date indicated above in accordance with R 325.11306. Requests for extension of this permit can be made through MiEHDWIS or by contacting your EGLE representative.

Revisions of the approved plans and specifications must be done in accordance R325.11309.

Noncompliance with the conditions of this permit and the requirements of Act 399 constitutes a violation of the Act. Intentionally providing false information in this application constitutes fraud which is punishable by fine and/or imprisonment.

Where applicable for water withdrawals, the issuance of this permit indicates compliance with the requirements of Part 327 of Act 451, Great Lakes Preservation Act.

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
WATER RESOURCES DIVISION
PERMIT FOR CONSTRUCTION OF WASTEWATER SYSTEMS

SITE NAME:	Holland CM
CONTACT NAME:	Bruce Carlstrom
CONTACT PHONE:	616-469-6508
CONTACT EMAIL:	bcarlstrom@hollandb.com
PROJECT COUNTY:	Ottawa

PERMIT NUMBER:	P41005779 v. 1
ISSUED DATE:	January 26, 2026
ISSUED TO:	Holland Board of Public Works
PROJECT NAME:	40th St Reconstruction
PROJECT LOCATION:	City of Holland

APPLICATION SUBMISSION ID: HQF-BQDT-65HBP
REQUIRED NOTIFICATIONS: The permittee shall submit a Construction Startup Notification (just prior to excavation) and a Construction Completion Notification (upon project completion) using the permit schedules in MiEnviro Portal.
<input type="checkbox"/> If this box is checked, please see the SPECIAL CONDITIONS on page 2.

**ISSUED UNDER THE AUTHORITY OF THE DIRECTOR OF
THE DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE)**

Issued By:


Shannon L. Henderson, P.E. Environmental Engineer

Reviewed By:


Shannon L. Henderson, P.E. Environmental Engineer

cc: Ottawa County Department of Health
Ottawa County Road Commission
Lynelle Berkenpas, P.E., Spalding DeDecker
Chris Harrington, Spalding DeDecker

GENERAL CONDITIONS

- a. This PERMIT only authorizes the construction, alteration, addition, or improvement of the wastewater system as described herein and is issued solely under the authority of Part 41, Sewerage Systems, of Act 451.
- b. This PERMIT expires two (2) years after the above date of issuance unless construction starts prior to the expiration date in accordance with R 299.2939(2) of the Part 41 Administrative Rules.
- c. Any portion of the herein-described proposed wastewater project constructed prior to the date of issuance is not authorized by this PERMIT and is a violation of Part 41 of Act 451.
- d. No sewer shall be placed into service unless and until the outlet sewer has been constructed, tested, and placed into service.
- e. Failure to meet any condition of this PERMIT or any requirement of Act 451 constitutes a violation of Act 451.
- f. Issuance of this PERMIT does not authorize any violation of federal, state, or local laws or regulations, nor does it obviate the need to obtain other permits or approvals from EGLE or other units of government as required by law.
- g. The applicant must provide notice of impending construction to public utilities and comply with the requirements of the Underground Facility Damage Prevention and Safety Act, PA 174 of 2013, as amended (MISS DIG).
- h. All earth-changing activities must be conducted in accordance with Part 91, Soil Erosion and Sedimentation Control, of Act 451.
- i. All construction activity, including groundwater dewatering, impacting wetlands shall be conducted in accordance with Part 303, Wetlands Protection, of Act 451.
- j. If water withdrawal, via dewatering activities, is associated with this project, authorization under Part 327, Great Lakes Preservation, of Act 451, is required for new or increased large quantity withdrawals over 100,000 gallons per day (70 gallons per minute). A Part 327 permit is required for new or increased large quantity withdrawals over 2,000,000 gallons per day.

SPECIAL CONDITIONS

1. This permit does not have any special conditions in addition to the General Conditions listed above.

PROPOSED WASTEWATER PROJECT DESCRIPTION

Sanitary sewer will be upsized from a 10-inch to a 15-inch on 40th St West of Waverly. Sanitary sewer will be upsized from an 8-inch to a 12-inch on 40th St East of Waverly. In total, 4,525 feet will be replaced East of Industrial Avenue to city limit.



Michigan Department of Environment, Great Lakes, and
Energy Water Resources Division

NOTICE OF COMPLETION

I hereby give notice to the Michigan Department of Environment, Great Lakes, and Energy that the project, which was permitted under applicable statute provisions, has been completed.

PERMIT NUMBER	COUNTY
PROJECT COMPLETION DATE	AREA CODE AND TELEPHONE NUMBER
PERMITTEE'S SIGNATURE	

Noncompliance with reporting requirements may result in monetary penalty. Completion of this form is required under the authority of the applicable parts of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Once complete please via email to staff or my mail to:
EGLE WRD
Transportation Review Unit
P.O. Box 30458
Lansing, Michigan 48909-7958



NOTICE OF AUTHORIZATION

Permit Number: WRP047367 v.1
Site Name: 18 - 40th Street - Industrial Drive
to 1,200 feet West of 52nd Street

Date Issued: December 15, 2025
Expiration Date: December 15, 2030

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division, P.O. Box 30458, Lansing, Michigan 48909-7958, under provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; specifically:

- Part 31, Floodplain Regulatory Authority of the Water Resources Protection.
- Part 301, Inland Lakes and Streams.
- Part 303, Wetlands Protection.

Authorized Activity:

Widen road to meet traffic demands and place sidewalk. Reconstruction of road and sidewalk improvements from Industrial Ave to city limits. Replacement of water main and service leads from Industrial Drive to Waverly Road. Limited signal improvements at 40th street and Waverly Road crossing. 508 feet of road and sidewalk will be placed in wetland, which will involve 1,564 cubic yards of fill within wetland. 0.175 acres of scrub-shrub/forested wetland will be permanently impacted. Wetland mitigation will be 1:1 (0.175 acres)

Waterbody: North Branch Macatawa River

To be conducted at property located in: Allegan County, City of Holland, Town 04N,
Range 15W, Section 03

Permittee:
City of Holland, Transportation Department
Andrew Bisaha
333 Wyngarden Way
Holland, Michigan 49423-5386

Jakob Maynard
Transportation Review Unit
Water Resources Division
517-331-2729

This notice must be displayed at the site of work.
Laminating this notice or utilizing sheet protectors is recommended.
Please refer to the above permit number with any questions or concerns.

EGLE
WRP047367 v1.0
Approved
Issued On:12/15/2025
Expires On:12/15/2030



**MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
WATER RESOURCES DIVISION
PERMIT**

Issued To:

**City of Holland, Transportation Department
Andrew Bisaha
333 Wyngarden Way
Holland, Michigan 49423-5386**

**Permit No: WRP047367 v.1
Submission No.: HQF-FNK8-BGF62
Site Name: 18 - 40th Street - Industrial Drive to 1,200 feet West of 52nd Street
Issued: 12/15/2025
Revised:
Expires: 12/15/2030**

This permit is being issued by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division, under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); specifically:

- | | |
|--|---|
| <input type="checkbox"/> Part 301, Inland Lakes and Streams | <input type="checkbox"/> Part 323, Shorelands Protection and Management |
| <input checked="" type="checkbox"/> Part 303, Wetlands Protection | <input type="checkbox"/> Part 325, Great Lakes Submerged Lands |
| <input type="checkbox"/> Part 315, Dam Safety | <input type="checkbox"/> Part 353, Sand Dunes Protection and Management |
| <input type="checkbox"/> Part 31, Water Resources Protection (Floodplain Regulatory Authority) | |

EGLE certifies that the activities authorized under this permit are in compliance with the State Coastal Zone Management Program and certifies without conditions under the Federal Clean Water Act, Section 401 that the discharge from the activities authorized under this permit will comply with Michigan's water quality requirements in Part 31, Water Resources Protection, of the NREPA and associated administrative rules, where applicable.

Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:

Authorized Activity:

Widen road to meet traffic demands and place sidewalk. Reconstruction of road and sidewalk improvements from Industrial Ave to city limits. Replacement of water main and service leads from Industrial Drive to Waverly Road. Limited signal improvements at 40th street and Waverly Road crossing.

508 feet of road and sidewalk will be placed in wetland, which will involve 1,564 cubic yards of fill within wetland. 0.175 acres of scrub-shrub/forested wetland will be permanently impacted.

Wetland mitigation will be 1:1 (0.175 acres)

**EGLE
WRP047367 v1.0
Approved
Issued On:12/15/2025
Expires On:12/15/2030**

Waterbody Affected: North Branch Macatawa River
Property Location: Allegan County, City of Holland, Town 04N, Range 15W, Section 03

Authority granted by this permit is subject to the following limitations:

- A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.
- B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31 of the NREPA.
- C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
- D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.
- E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.
- F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with 2013 PA 174 (Act 174) and comply with each of the requirements of Act 174.
- G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
- H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
- I. Permittee shall notify EGLE within one (1) week after the completion of the activity authorized by this permit by completing and forwarding the attached preaddressed postcard to the office addressed thereon.
- J. This permit shall not be assigned or transferred without the written approval of EGLE.
- K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.
- L. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31 of the NREPA, and wetlands).
- M. In issuing this permit, EGLE has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, EGLE may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.
- N. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents, and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representative of the permittee, undertaken in connection with this permit. The permittee's obligation to indemnify the State of Michigan applies only if the state: (1) provides the permittee or its designated representative written notice of the claim or cause of action within 30 days after it is received by the state, and (2) consents to the permittee's participation in the proceeding on the claim or cause of action. It does not apply to contested case proceedings under the Administrative Procedures Act, 1969 PA 306, as amended, challenging the permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.

- O. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, EGLE may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.
- P. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from EGLE. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by EGLE prior to being implemented.
- Q. This permit may be transferred to another person upon written approval of EGLE. The permittee must submit a written request to EGLE to transfer the permit to the new owner. The new owner must also submit a written request to EGLE to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties that includes all the above information may be provided to EGLE. EGLE will review the request and, if approved, will provide written notification to the new owner.
- R. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.
- S. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.
- T. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent (CEA).
- U. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.
- V. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property are subject to civil damage litigation.
- W. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the water body are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
- X. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the Michigan Department of Natural Resources, Fisheries Division.
- Y. Work to be done under authority of this permit is further subject to the following special instructions and specifications:
1. Authority granted by this permit does not waive permit or program requirements under Part 91 of the NREPA or the need to acquire applicable permits from the CEA. To locate the Soil Erosion Program Administrator for your county, visit

[Michigan.gov/egle/about/organization/water-resources/soil-erosion/sesc-overview](https://www.michigan.gov/egle/about/organization/water-resources/soil-erosion/sesc-overview) and select “Soil Erosion and Sedimentation Control Agencies”.

2. The authority to conduct the activity as authorized by this permit is granted solely under the provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state, or federal approval or authorization necessary to conduct the activity.
3. The permittee will mitigate the loss of 0.175-acres of scrub-shrub/emergent wetland and by using 0.175 acres of credits at the LCRC Perry Wetland Mitigation Bank Site.
4. No fill, excess soil, or other material shall be placed in any wetland, floodplain, or surface water area not specifically authorized by this permit, its plans, and specifications.
5. All fill/backfill shall consist of clean inert material that will not cause siltation nor contain soluble chemicals, organic matter, pollutants, or contaminants. All fill shall be contained in such a manner so as not to erode into any surface water, floodplain, or wetland. All raw areas associated with the permitted activity shall be stabilized with sod and/or seed and mulch, riprap, or other technically effective methods as necessary to prevent erosion.
6. Prior to the initiation of any permitted construction activity, a sedimentation barrier shall be installed along the entire route of the disturbed wetland area and maintained in good working order until permanent stabilization and revegetation of all disturbed areas has occurred. The sedimentation barrier shall be removed after revegetation.
7. Discharges shall meet state water quality standards or the effluent from the outfall is otherwise in compliance with regulations issued under the NPDES Program (Part 31 of the NREPA). The discharge has been passed through stormwater treatment devices (i.e., best management practices) to maximize the removal of sediments and other contaminants (e.g., oil, grit, trash, heavy metals, etc.) using the best available and practicable technologies that are necessary when considering the receiving waters and associated aquatic resources.
8. The outfall shall not result in changes in the ecological type of the wetland. Changes to the wetland watershed area and impacts from water storage shall be minimized.
9. To avoid disturbance of Northern long-eared bat or Indiana bat, which are federally listed as endangered species, any tree larger than three (3) inches in diameter shall not be cut between April 15 and September 30 of any year.
10. This permit does not authorize or sanction work that has been completed in violation of applicable federal, state, or local statutes.
11. The permit placard shall be kept posted at the work site in a prominent location at all times for the duration of the project or until permit expiration.
12. This permit is being issued for the maximum time allowed and no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by EGLE, will be for a five (5) year period beginning on the date of issuance. If the project is not completed by the expiration date, a new permit must be sought.

Issued By:



Jakob Maynard
Transportation Review Unit
Water Resources Division
517-331-2729

THIS PERMIT MUST BE SIGNED BY THE PERMITTEE TO BE VALID.

I hereby assure that I have read, am familiar with, and agree to adhere to the terms and conditions of this permit.

Permittee Signature

Date

cc: Cheshire Township Clerk
Allegan County
Allegan County Drain Commissioner
Bruce Carlstrom, Spalding DeDecker Engineering
Holly Vickers, MiWB

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4	TYPICAL SECTIONS 2
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6	REMOVALS AND SESC STA 30+50 TO STA 50+50
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10	CONSTRUCTION PLAN STA 20+50 TO STA 30+50
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17	GRADING 1 - Industrial Ave Details
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31	SOIL BORING LOG MAP
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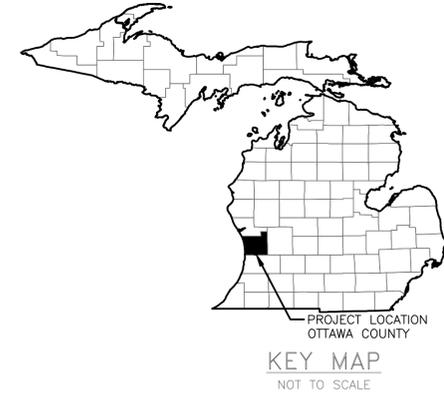
CITY OF HOLLAND

PLAN AND PROFILE OF PROPOSED

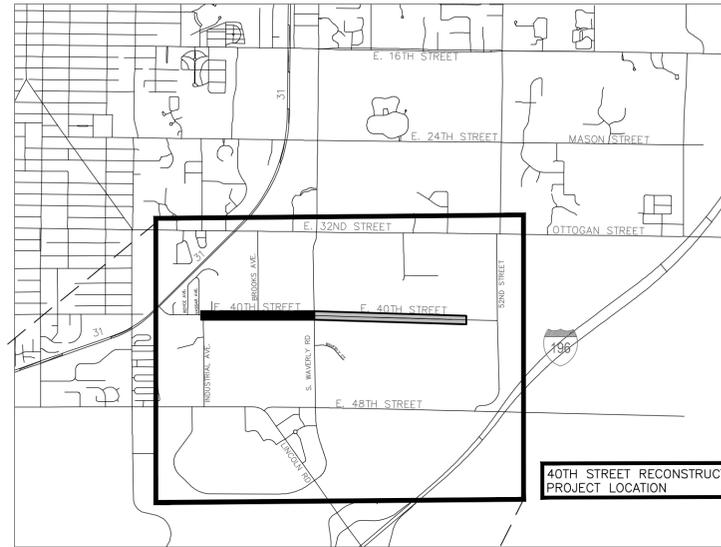
40TH STREET RECONSTRUCTION PROJECT

ALLEGAN COUNTY, MICHIGAN
JOB NUMBER: HO24001

40TH STREET FROM INDUSTRIAL AVE. TO EAST CITY LIMIT



TRAFFIC DATA						
ROUTE	2025 ADT	2045 ADT	COMMERCIAL %	POSTED SPEED	DESIGN SPEED	LOCATION
E. 40TH STREET	1,414	2,084	12%	40	45	INDUSTRIAL AVE TO S. WAVERLY



LOCATION MAP
1"=1/2 MILE

PLANS PREPARED UNDER THE SUPERVISION OF:

LYNELLE E. BERKENPAS, P.E. #6201057578 _____ DATE _____

SPALDING DEDECKER
ORGANIZATION

905 E SOUTH BLVD, ROCHESTER HILLS, MI 48307
ADDRESS

(248) 844-5400
TELEPHONE NO.

HOLLAND BOARD OF PUBLIC WORKS

BRIAN RICHEY, P.E. #6201065244 _____ DATE _____

HOLLAND BOARD OF PUBLIC WORKS
ORGANIZATION

625 HASTINGS AVE HOLLAND, MI 49423
ADDRESS

(616) 355-1500
TELEPHONE NO.

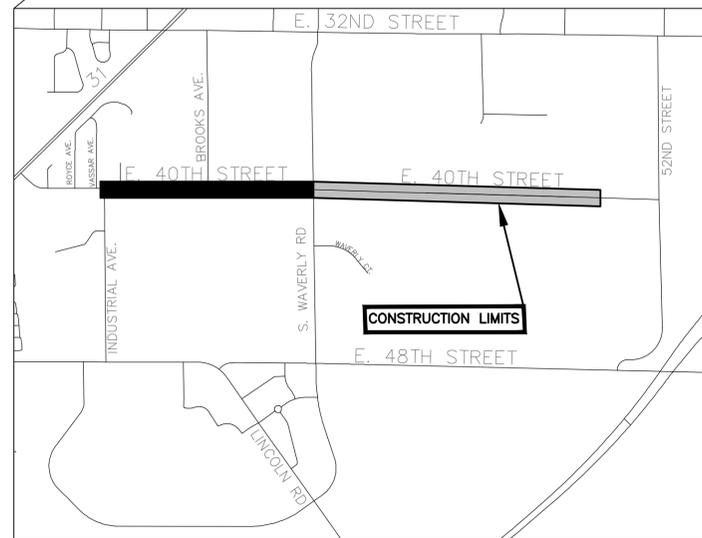
CITY OF HOLLAND

BRIAN JAY WHITE, P.E. #6201050126 _____ DATE _____

CITY OF HOLLAND
ORGANIZATION

333 WYNGARDEN WAY HOLLAND, MI 49423
ADDRESS

(616) 928-2400
TELEPHONE NO.



SITE MAP
1"= 500 FEET



TWO PHASE ROAD RECONSTRUCTION AND UTILITY REPLACEMENT PROJECT:
PHASE 1: FULL ROAD RECONSTRUCTION ON 0.605 MI. OF E. 40TH STREET AND UPSIZING THE EXISTING SANITARY SEWER AND WATER MAIN.
PHASE 2: FULL ROAD RECONSTRUCTION ON 0.742 MI. OF E. 40TH STREET AND INSTALLATION OF NEW STORM AND SANITARY SEWERS.

JOB NO. HO24001	SHEET 1 OF 36
---------------------------	-------------------------

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Excellence Since 1954

905 South Blvd. East, Rochester Hills, MI 48307
Phone: (248) 844-5400 | Fax: (248) 844-5404

PREPARED UNDER THE SUPERVISION OF:

LEGEND	
	MANHOLE
	CATCH BASIN
	SEWER CLEAN OUT
	GAS METER
	GAS SHUT OFF VALVE
	VALVE BOX
	GATE VALVE & WELL
	WATER SHUT OFF VALVE
	FIRE HYDRANT
	SPRINKLER VALVE BOX
	LAWN SPRINKLER HEAD
	UNVERIFIED MAPPED OBJECT
	ELECTRIC RISER OR METER
	TELEPHONE RISER
	CABLE TV RISER
	AIR CONDITION UNIT
	UTILITY POLE
	UTILITY POLE W/ LAMP EXTENSION (ARROW INDICATES DIRECTION OF ARM)
	LIGHT POLE
	LIGHT POLE WITH LAMP EXTENSION
	TRAFFIC SIGNAL
	POLE W/ TRAFFIC SIGNAL (OVER ROAD)
	GUY WIRE
	GROUND LEVEL / DECORATIVE LIGHTING
	FLAG POLE
	METAL OR CONC. POST
	MAILBOX
	SIGN
	WATER FOUNTAIN
	PARKING METER
	BILLBOARD OR LARGE SIGN
	BASKETBALL HOOP
	BOULDER
	STATUE OR SCULPTURE
	BENCH
	BIKE RACK
	DETECTABLE WARNING STRIP
	PICNIC TABLE
	SOCCER GOAL
	STUMP
	DOWNSPOUT INTO STORM DRAIN
	DOWNSPOUT TO GROUND
	CONIFEROUS TREE
	DECIDUOUS TREE
	DECIDUOUS SHRUB
	CONIFEROUS SHRUB
	SECTION CORNER
	TRAVERSE POINT
	STRUCTURE NUMBER
	SDA POINT No.
	SPOT ELEVATION
	TOP OF CURB ELEVATION
	GUTTER ELEVATION
	TOP OF PAVEMENT ELEVATION
	EDGE OF METAL ELEVATION
	TOP OF WALK ELEVATION
	TOP OF WALL ELEVATION
	BOTTOM OF WALL ELEVATION
	GROUND ELEVATION
	UNDERGROUND
	FIBER OPTIC
	CONCRETE
	ASPHALT
	OVERHANG
	FINISH FLOOR ELEVATION
	DOOR LEDGE ELEVATION
	FOUND IRON
	FOUND IRON PIPE
	FOUND MONUMENT
	FOUND P.K. NAIL
	SET IRON WISDA CAP
	SET P.K. NAIL
	SET P.K. NAIL WISDA TAG
	SET MAGNETIC NAIL WISDA TAG
	MEASURED
	RECORD
	CALCULATED
	INVERT ELEVATION
	CORRUGATED METAL PIPE
	GAS
	SANITARY SEWER (S&I)
	STORM SEWER (STM)
	WATERMAIN (WM)
	OVERHEAD WIRE
	COMBINED SEWER
	STEAM LINE
	OIL LINE
	UG FIBER (COMM)
	UG ELECTRIC (ELEC.)
	UG PHONE (PH)
	UG CABLE (CBL)
	CHAIN LINK FENCE (CL)
	WOOD FENCE
	WOVEN WIRE FENCE (WW)
	GUARD RAIL
	EDGE OF BRUSH WOODS
	CENTERLINE OF DITCH
	CULVERT
	MAJOR CONTOUR
	MINOR CONTOUR
	BOUNDARY LINES
	ROW LINES
	SECTION LINES
	PROPERTY LINES
	BUILDING
	ASPHALT
	CONCRETE
	GRAVEL/DIRT/MULCH
	BRICK / PAVERS
	WATER
	WATER W/ VEGETATION

GENERAL PLAN NOTES

UNDERGROUND UTILITIES

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 1974, THE CONTRACTOR SHALL DIAL 1-800-462-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

EXISTING WATER MAINS AND SANITARY MAINS

THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING UNDERGROUND UTILITIES AND APPURTENANCES DURING THE CONSTRUCTION OF THE PROPOSED ROAD AND UNDERGROUND STRUCTURES. THE HOLLAND BPW WILL STAKE EXISTING SANITARY SEWERS, LATERALS, WATER MAINS, AND WATER SERVICES. TELEPHONE 365-1644 FOR LOCATIONS.

EXISTING UTILITY ELEVATIONS

LOCATION AND SIZE OF EXISTING UNDERGROUND UTILITIES SHOWN THROUGHOUT THESE DOCUMENTS WERE ESTABLISHED FROM THE BEST AVAILABLE INFORMATION. THE INFORMATION SHOULD NOT BE INTERPRETED AS EXACT NOR SHOULD THOSE MARKED FACILITIES BE ASSUME TO BE THE ONLY UTILITIES IN THE AREA. NEITHER ENGINEER OR OWNER GUARANTEES THIS INFORMATION TO BE FULLY ACCURATE OR COMPLETE.

PROTECTION OF THE WORKSITE

THE CONTRACTOR SHALL CONDUCT OPERATIONS SUCH THAT THERE ARE NO OPEN EXCAVATION AREAS LEFT UNATTENDED DURING THE DAY OR OVERNIGHT. IF THE CONTRACTOR IS UNABLE TO DO THIS, PROTECTIVE FENCING SHALL BE PROVIDED AND ERECTED TO COMPLETELY ENCIRCLE THE OPEN EXCAVATION AREA AT CONTRACTOR'S EXPENSE.

PAVEMENT MARKINGS

ALL PERMANENT PAVEMENT MARKINGS, SHAPES AND DIMENSIONS SHALL CONFORM WITH MDT PAVEMENT MARKING TYPICALS PAVE-900 THRU 985 SERIES UNLESS SPECIFIED OTHERWISE BY SPECIAL PROVISION OR AS SHOWN ON THE PLANS.

MATERIAL HANDLING AND STORAGE

MATERIAL DELIVERED TO THE CONSTRUCTION SITE SHALL BE NEATLY AND COMPACTLY PLACED ALONG THE SIDES OF THE ROADWAY IN SUCH A WAY AS TO CAUSE THE LEAST INCONVENIENCE TO PROPERTY OWNERS AND THE GENERAL PUBLIC AND IS NOT TO BE PLACED WITHIN TWENTY (20) FEET OF ANY FIRE HYDRANT. PRIVATE DRIVES AND STREET CROSSINGS SHALL BE PROTECTED FROM DAMAGE AND CLEAR LINE-OF-SIGHT MAINTAINED.

MONUMENT BOXES

IT IS THE INTENT THAT ALL GOVERNMENT CORNERS, SHOWN OR NOT SHOWN ON THIS PROJECT, BE PRESERVED AND THAT MONUMENT BOXES BE PLACED OR ADJUSTED WHERE NECESSARY. ALL PROPERTY IRONS AND MONUMENTS, IF DISTURBED OR DESTROYED BY THE CONTRACTOR'S OPERATION, SHALL BE REPLACED BY A LICENSED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE. THIS WORK WILL INCLUDE TEMPORARY WITNESSING, INSTALLATION OF NEW MONUMENTS, PERMANENT WITNESSING, AND RECORDING ACCORDING TO THE APPROPRIATE MICHIGAN PUBLIC ACTS.

DEWATERING / BYPASS PUMPING

PAYMENT FOR ANY DEWATERING OR BYPASS PUMPING PERFORMED DURING THE PROJECT SHALL BE INCLUDED IN THE PAY ITEMS PROVIDED AND WILL NOT BE MEASURED OR PAID FOR SEPARATELY.

SAWCUTTING

DOUBLE SAWCUTTING FULL DEPTH PRIOR TO REMOVALS SHALL BE REQUIRED AT THE LIMITS OF REMOVAL OF SIDEWALK, APPROACHES, CURB AND GUTTER AND PAVEMENT AS DETERMINED BY THE ENGINEER. PAYMENT FOR ALL SAW CUTS SHALL BE INCLUDED IN ITEMS PROVIDED.

ECHELON PAVING

THE SURFACE COURSE SHALL BE PLACED USING ECHELON PAVING. TWO PAVERS SHALL BE MOBILIZED TO THE JOB SITE AND WORK SIMULTANEOUSLY TO CONSTRUCT HOT CONSTRUCTION JOINTS ALONG THE PROPOSED LANE LINES (UNDER PAVEMENT MARKINGS), UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ALL COSTS FOR THIS WORK SHALL BE INCLUDED IN THE MAINLINE PAVING PAY ITEM. ANY SIDE STREET AND APPROACH WORK SHALL BE PAVED PRIOR TO THE MAINLINE PAVING. THE MAINLINE PAVERS SHALL NOT PICK UP TO DO ADJACENT WORK UNCE THE MAINLINE PAVING HAS BEGUN.

PAVEMENT REMOVAL

PAVEMENT REMOVAL AS SHOWN ON THE PLANS SHALL BE AT THE DISCRETION OF THE ENGINEER. IF IN HIS JUDGMENT, AREAS OF PAVEMENT MAY BE LEFT IN PLACE, OR ADDITIONAL AREAS ADDED TO PROVIDE THE PROPER CROSS-SECTION AND BASE, ADJUSTMENTS MAY BE MADE IN THE QUANTITIES.

SOIL EROSION MEASURES

PLACE TEMPORARY SEED AND MULCH AS SOON AS POSSIBLE. THE CONTRACTOR SHALL REMOVE ACCUMULATIONS OF DEBRIS CAUSED BY HIS OPERATIONS. PAVEMENT SHALL BE CLEANED AT THE END OF EACH DAY. ALL CATCH BASIN INLETS SHALL BE FITTED WITH FABRIC DROPS AND MAINTAINED THROUGHOUT THE PROJECT.

NOISE

THE CONTRACTOR SHALL TAKE SPECIAL MEASURES TO LIMIT NOISE FROM EQUIPMENT AND TEMPORARY FACILITIES THAT ARE PERMITTED BY THE ENGINEER TO OPERATE OUTSIDE OF NORMAL WORKING HOURS, SUCH AS DEWATERING PUMPS, GENERATORS, ETC. NOISE REDUCING MEASURES SUCH AS MUFFLERS, QUIET PACKS, SOUND BARRIERS, ETC. SHALL BE UTILIZED SO THAT BETWEEN THE HOURS OF 7:00 P.M. AND 7:00 A.M., THE CONTRACTOR SHALL LIMIT THE AMBIENT NOISE LEVEL TO BELOW 75 DECIBELS AS MEASURED AT THE NEAREST RIGHT-OF-WAY LINE. MULTIPLE NOISE REDUCING MEASURES MAY BE REQUIRED FOR EACH FACILITY OR PIECE OF EQUIPMENT. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT IS CONSIDERED AS HAVING BEEN INCLUDED IN THE CONTRACT UNIT PRICES BID FOR RELATED ITEMS OF WORK.

SIGNS

PERMANENT SIGNS SHALL BE SALVAGED, MAINTAINED AND RE-INSTALLED AS INDICATED ON THE PLANS AT LOCATIONS APPROVED BY THE ENGINEER AND SHALL CONFORM TO MDT SIGNING TYPICAL PLANS SIGN-100 THRU 890 SERIES UNLESS SPECIFIED BY SPECIAL PROVISION. ALL STOP SIGNS SHALL BE KEPT IN SERVICE THROUGHOUT THE ENTIRE PROJECT.

EMERGENCY & GENERAL ACCESS

THE CONTRACTOR SHALL AT ALL TIMES PROVIDE EMERGENCY ACCESS TO THE PROPERTY IN THE VICINITY OF THE CONSTRUCTION FOR POLICE AND FIRE EQUIPMENT. REASONABLE ACCESS MUST BE MAINTAINED TO COMMERCIAL ESTABLISHMENTS AND RESIDENCES AT ALL TIMES. THE CONTRACTOR SHALL GIVE PROPERTY OWNERS WRITTEN NOTICE 3 WORKING DAYS PRIOR TO DRIVEWAY CONSTRUCTION OR CLOSURES.

TEMPORARY ACCESS

TEMPORARY GRAVEL FOR DRIVEWAYS, INTERSECTIONS, ETC. SHALL BE INSTALLED AT THE DIRECTION OF THE ENGINEER AND SHALL BE PAID AS: "MAINTENANCE GRAVEL."

INSPECTION

IN NO INSTANCE WILL ANY ACTION OR OMISSION ON THE PART OF THE INSPECTOR RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF COMPLETING THE WORK ACCORDING TO THE PLANS AND SPECIFICATIONS, IN ACCORDANCE WITH SECTION 104.01C OF THE MDT 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION.

MATERIAL DISPOSITION

SIGNED RELEASES MUST BE OBTAINED AND PROVIDED TO THE CITY/BPW BEFORE ANY SOIL IS DEPOSITED ONTO PRIVATE PROPERTY.

UTILITY POLES

THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN AND PROTECT UTILITY POLES ADJACENT TO EXCAVATIONS AND CONSTRUCTION RELATED OPERATIONS, INCLUDING BUT NOT LIMITED TO, HOLDING THE POLES IN PLACE DURING EXCAVATION OPERATIONS. THE CONTRACTOR SHALL CONTACT THE BPW OR OTHER UTILITY A MINIMUM OF 24 HOURS PRIOR TO ANY EXCAVATION, WITHIN A DISTANCE EQUAL TO THE DEPTH (GREATER THAN 3 FEET) OF THE PROPOSED EXCAVATION NEAR A UTILITY POLE, FOR APPROVAL OF THE METHOD THE CONTRACTOR INTENDS TO USE TO MAINTAIN AND PROTECT THE POLES. THE COST TO MAINTAIN AND PROTECT UTILITY POLES SHALL BE CONSIDERED INCLUDED IN THE PAY ITEMS PROVIDED.

CONCRETE FINISH

SIDEWALK AND OTHER FLATWORK SHALL BE TEXTURED WITH MEDIUM BROOM FINISH.

CONCRETE

NO HIGH EARLY CONCRETE SHALL BE PERMITTED TO BE PLACED ONSITE WITHOUT SPECIFIC WRITTEN AUTHORIZATION FROM THE ENGINEER.

TURF RESTORATION

PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PAY ITEM _SLOPE RESTORATION, MODIFIED.

SOIL BORINGS

SOIL BORING INFORMATION IS DEPICTED IN THE REMOVAL SHEETS FOR REFERENCE ONLY. THE GEOTECHNICAL REPORT BY SOILS AND STRUCTURES ON SEPTEMBER 17 2024 IS AVAILABLE IN THE REQUEST FOR PROPOSALS FOR ADDITIONAL INFORMATION.

NOTES APPLYING TO STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED. PLEASE NOTE THE DETAILS PRESENTED BELOW ARE FROM THE CURRENT EDITION OF THE MDT ROAD AND BRIDGE STANDARD PLANS.

STANDARD PLANS

DRAINAGE STRUCTURES	R-1-G
COVER B	R-7-F
COVER C	R-8-D
FOR USE IN VALLEY GUTTER SECTIONS	
MONUMENT PRESERVATION	R11-E
COVER G	R-12-E
FOR USE IN YARD AREAS	
COVER K	R-15-G
FOR USE IN CURBED AREAS	
SIDEWALK RAMP	R-28-J
DRIVEWAY OPENINGS & APPROACHES, AND CONCRETE SIDEWALKS	R-29-I
CONCRETE CURB AND CONCRETE CURB & GUTTER	R-30-G
GRANULAR BLANKET, UNDERDRAINS, OUTLET ENDINGS FOR UNDERDRAINS, AND SEWER BULKHEADS	R-80-F
UTILITY TRENCHES	R-83-C
SOIL EROSION & SEDIMENTATION CONTROL MEASURES	R-96-E
SEEDING AND TREE PLANTING	R-100-I

TRAFFIC AND SAFETY STANDARD PLANS

GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS	WZD-100-A
TEMPORARY TRAFFIC CONTROL DEVICES	WZD-125-E

UTILITY CONTACTS

ELECTRIC	"MISSDIG" 811
HOLLAND BOARD OF PUBLIC WORKS	
625 HASTINGS AVE	
HOLLAND, MI 49423	
616-355-1621	
DAN KRIEGE	
DKRIEGER@HOLLANDBPW.COM	

FIBER	
HOLLAND BOARD OF PUBLIC WORKS	
625 HASTINGS AVE	
HOLLAND, MI 49423	
616-355-1555	
STEVE ROOT	
SROOT@HOLLANDBPW.COM	

CATV	
COMCAST	
3500 PATTERSON AVE SE	
GRAND RAPIDS, MI 49512	
231-726-0862	
JASON BROWN	
JASON_BROWN@CABLE.COMCAST.COM	

NATURAL GAS	
SEMCO GAS ENERGY	
712 BLACK RIVER DR	
HOLLAND, MI 49424	
616-392-8060	
MATT WIERENGA	
MATTHEW.WIERENGA@SEMCOENERGY.COM	

TELEPHONE/CABLE	
AT&T	
245 E 24TH ST	
HOLLAND, MI 49423	
810-407-3521	
BRAD DYKENS	
BD1636@ATT.COM	

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Holland
MICHIGAN



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PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING UTILITIES (IN CONFLICT WITH PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. CALL MISS DIG 3 WORKING DAYS PRIOR TO CONSTRUCTION.

UTILITY NOTE

UTILITY INFORMATION ON THIS DRAWING MAY BE FROM INFORMATION DISCLOSED TO THIS FIRM BY THE VARIOUS UTILITY COMPANIES, CITY/COUNTY AGENCIES AND OTHER VARIOUS SOURCES. UNDERGROUND UTILITIES WHICH ARE ON PRIVATE PROPERTY ARE USUALLY NOT DELINEATED UPON A UTILITY COMPANY'S PUBLISHED PLANS. THEIR LOCATION, IF SHOWN UPON THIS SURVEY, ARE APPROXIMATED FROM FOUND PAINT MARKS/STAKES, ETC. AS LOCATED BY THIS FIRM FROM SOURCES WHICH ARE UNKNOWN. NO GUARANTEE IS GIVEN AS TO THE COMPLETENESS OR ACCURACY THEREOF.

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40TH STREET RECONSTRUCTION

GENERAL NOTES

SECTION 04/05
TOWN 4N RANGE 15W
CITY/TOWNSHIP HOLLAND
COUNTY ALLEGAN

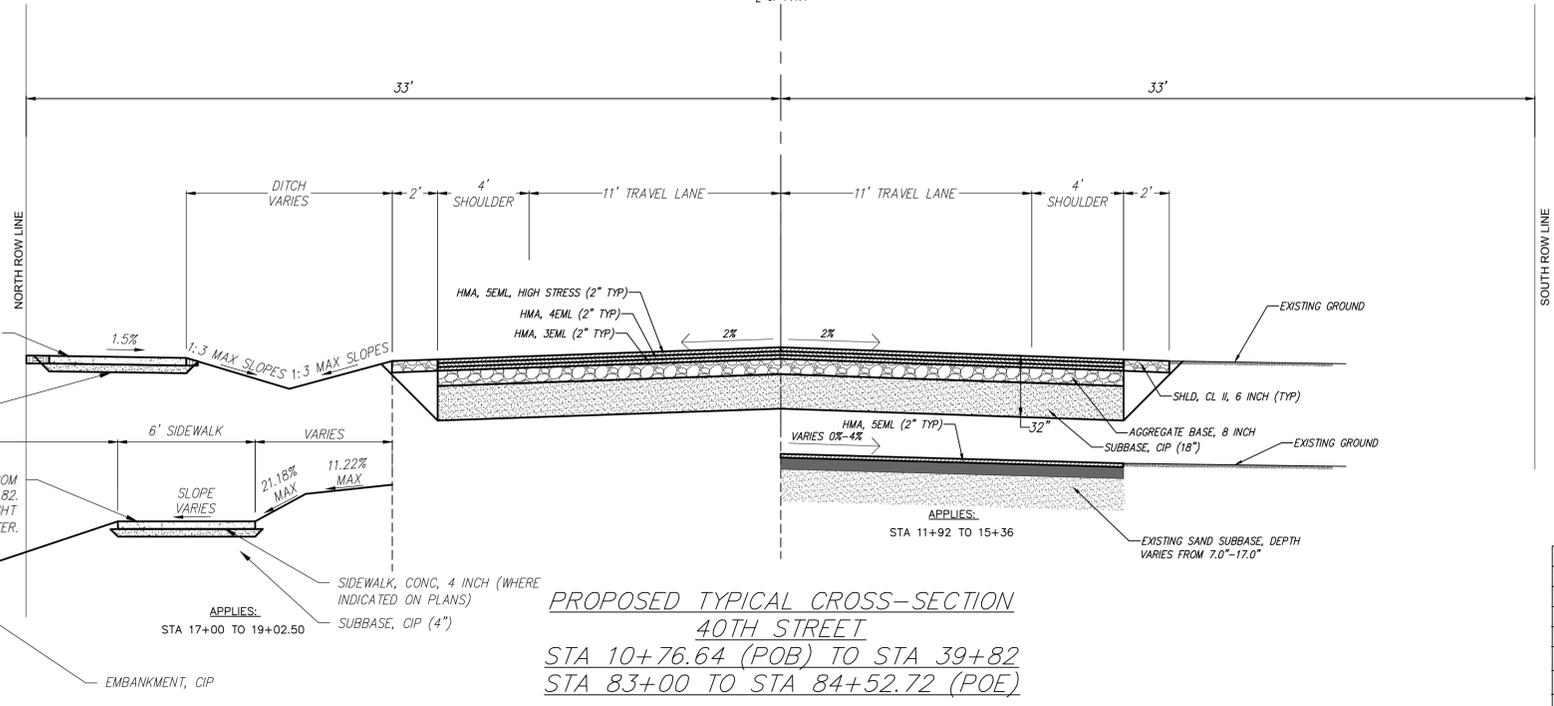
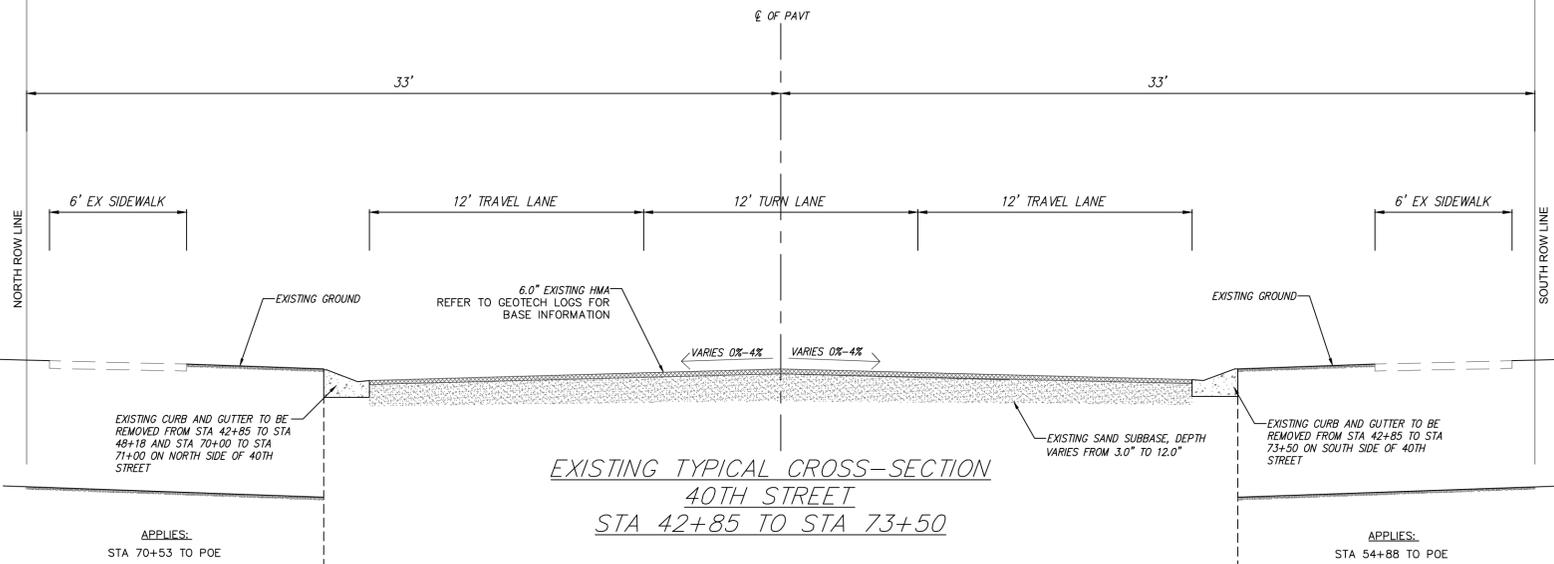
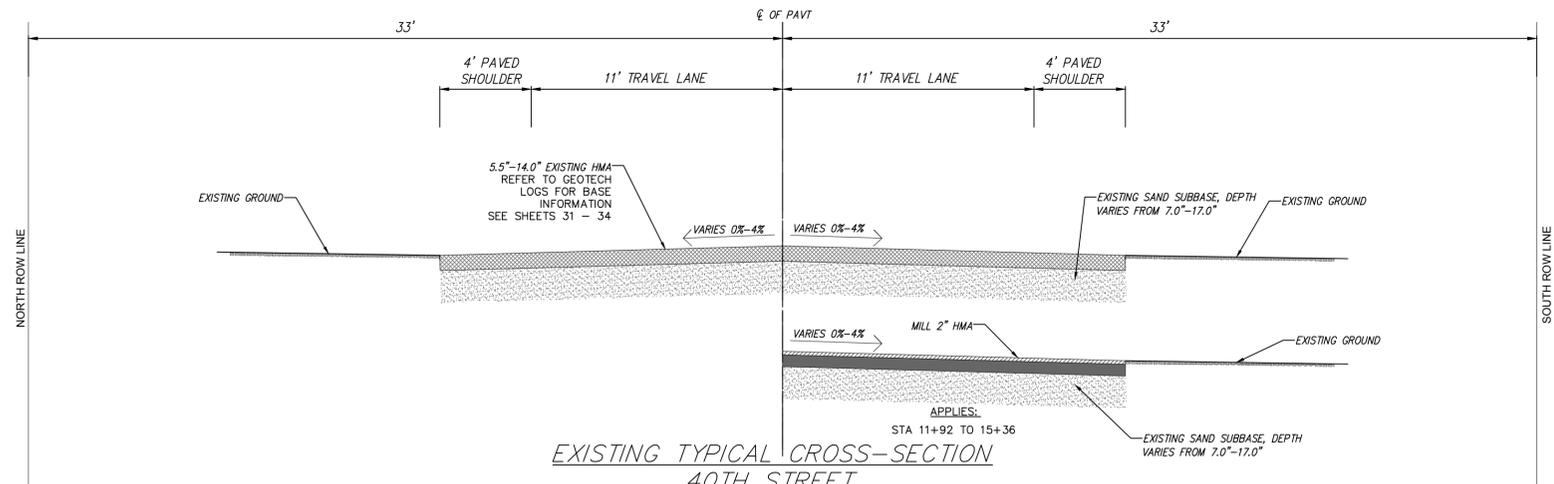
NO.	DATE	SUBMITTAL

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET,
ADJUST SCALES ACCORDINGLY

DRAFTER B. CARLSTROM	DATE 04-28-25
DESIGNER A. TEMPLE	DATE 04-28-25
CHECKED BY C. HARRINGTON	DATE 04-28-25
PROJECT MANAGER L. BERKENPAS	BID PLAN DATE 04-28-25
DEPARTMENT MANAGER APPROVAL J. SCHROT	DATE 04-28-25
JOB NO. H024001	DRAWING NO. H024001NOT
SCALE: NTS	SHEET NO. 2 OF 36

Approved
Issued On:12/15/2025
Expires On:12/15/2025

Plotted: Sep 11, 2025, 11:27 AM by user: 1049 - Saved: 8/21/2025 by user: 1049
 J:\HD\24001 - 40th_street_reconstruction.DWG:HD24001TYP.dwg



HMA APPLICATION ESTIMATE			
BID ITEM	RATE (LBS/SYD)	PERFORMANCE GRADE	REMARKS
HMA 3EML HIGH STRESS	220	64-26P	AM = 260 MIN 2.0 INCHES (TOP COURSE)
HMA 4EML	220	58-28	2.0 INCHES (LEVELING COURSE)
HMA 3EML	220	58-28	2.0 INCHES (BASE COURSE)
HMA APPROACH APP-1	660	58-28	6.0 INCHES ((1) 3.5" LIFTS OF 3EML, (1) 2.5" LIFT OF 4EML)
HMA APPROACH APP-2	440	58-28	RESIDENTIAL DRIVES - 4.0 INCHES ((2) 2.0" LIFTS OF 4 EML, (1) 2.0" LIFT OF 4 EML)
*BOND COAT 0.05-0.10 GAL FOR INFORMATION ONLY			

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Holland
MICHIGAN

GRAPHIC SCALE
(IN FEET)
1:4

811
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40TH STREET RECONSTRUCTION

TYPICAL SECTIONS 1

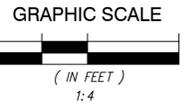
SECTION 04/05
TOWN 4N RANGE 15W
CITY/TOWNSHIP HOLLAND
COUNTY ALLEGAN

NO.	DATE	SUBMITTAL

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET,
ADJUST SCALES ACCORDINGLY

DRAFTER	DATE
B. CARLSTROM	04-28-25
DESIGNER	DATE
A. TEMPLE	04-28-25
CHECKED BY	DATE
C. HARRINGTON	04-28-25
PROJECT MANAGER	BID PLAN DATE
L. BERKENPAS	04-28-25
DEPARTMENT MANAGER APPROVAL	DATE
J. SCHROT	04-28-25

JOB NO.	DRAWING NO.
H024001	H024001TYP
SCALE:	SHEET NO.
1"=4'	3 OF 36



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40TH STREET RECONSTRUCTION

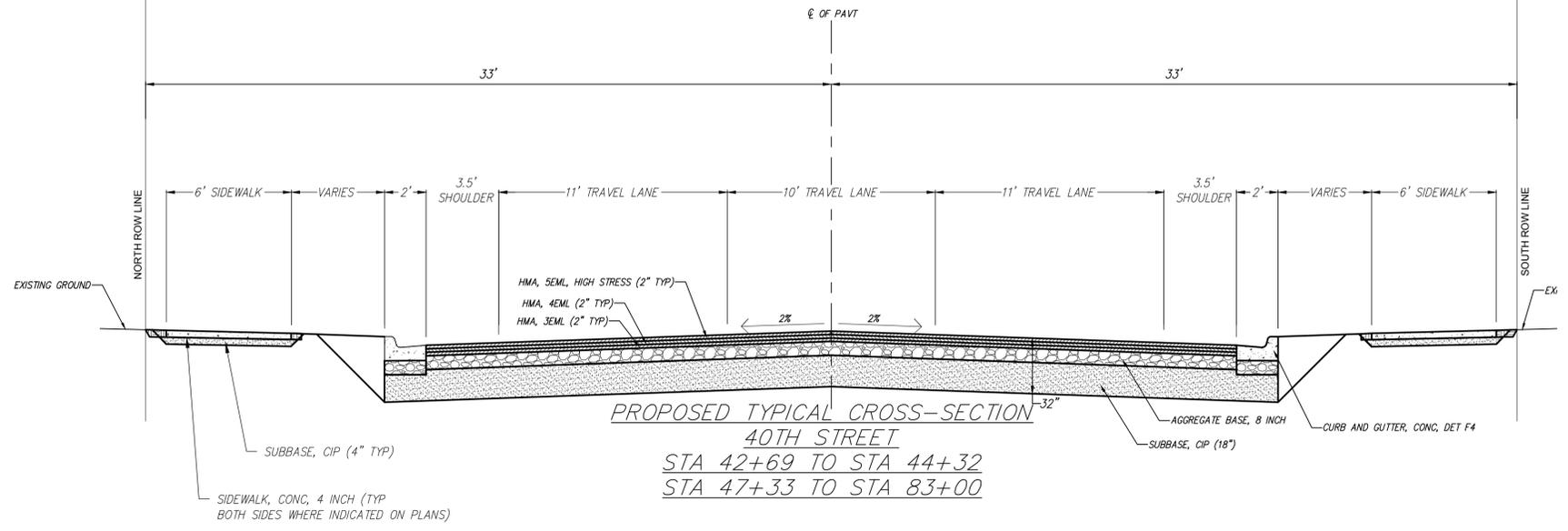
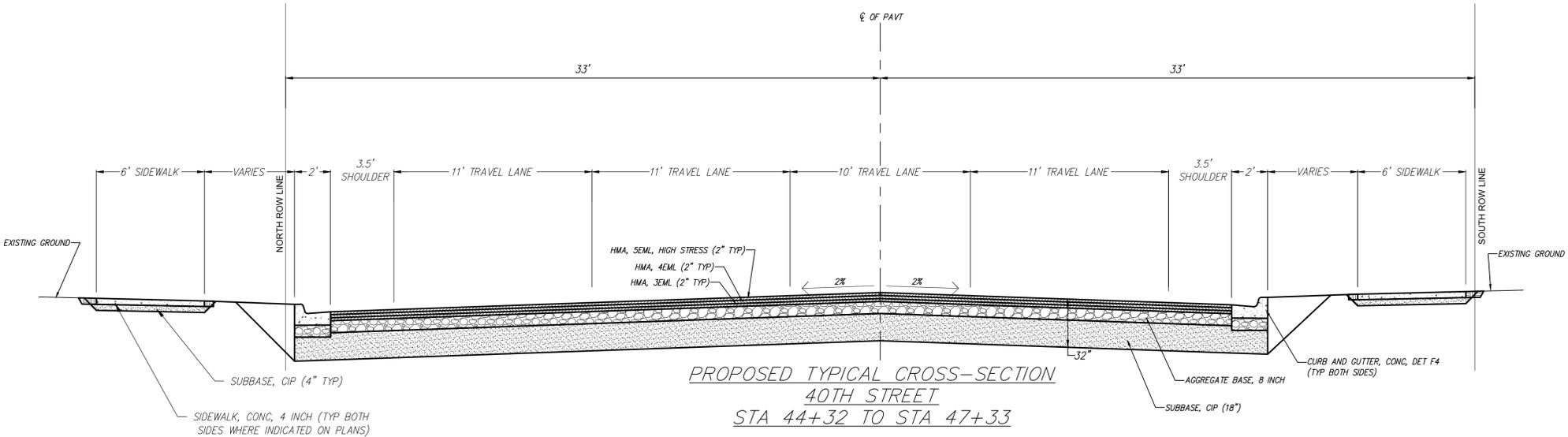
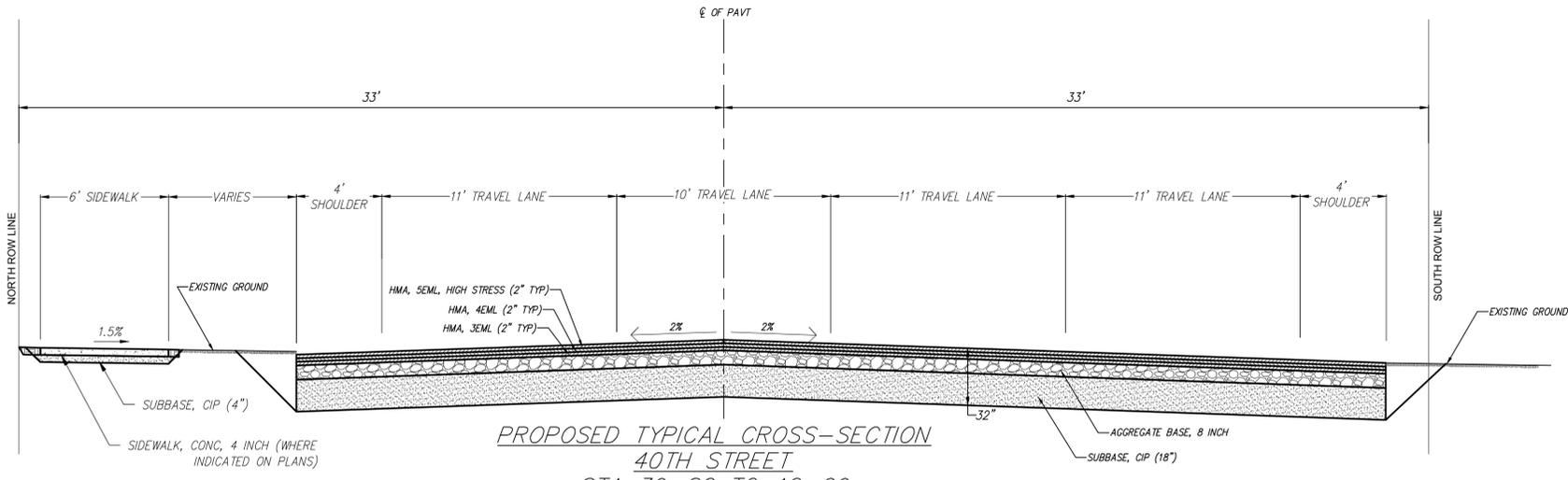
TYPICAL SECTIONS 2

SECTION 04/05
 TOWN 4N RANGE 15W
 CITY/TOWNSHIP HOLLAND
 COUNTY ALLEGAN

NO.	DATE	SUBMITTAL

VERIFY SCALES
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 ADJUST SCALES ACCORDINGLY

DRAFTER	DATE
B. CARLSTROM	04-28-25
DESIGNER	DATE
A. TEMPLE	04-28-25
CHECKED BY	DATE
C. HARRINGTON	04-28-25
PROJECT MANAGER	BID PLAN DATE
L. BERKENPAS	04-28-25
DEPARTMENT MANAGER APPROVAL	DATE
J. SCHROT	04-28-25
JOB NO.	DRAWING NO.
H024001	H024001 TYP
SCALE:	SHEET NO.
1"=4'	4 OF 36



HMA APPLICATION ESTIMATE

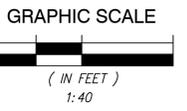
BID ITEM	RATE (LBS/SYD)	PERFORMANCE GRADE	REMARKS
HMA, 5EML	220	58-28P	AW = 260 MIN 2.0 INCHES (TOP COURSE)
HMA, 4EML	220	58-28P	2.0 INCHES (LEVELING COURSE)
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*BOND COAT	0.05-0.10 GAL		

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40TH STREET RECONSTRUCTION

REMOVALS AND SESC
 STA 70+50 TO STA 90+50

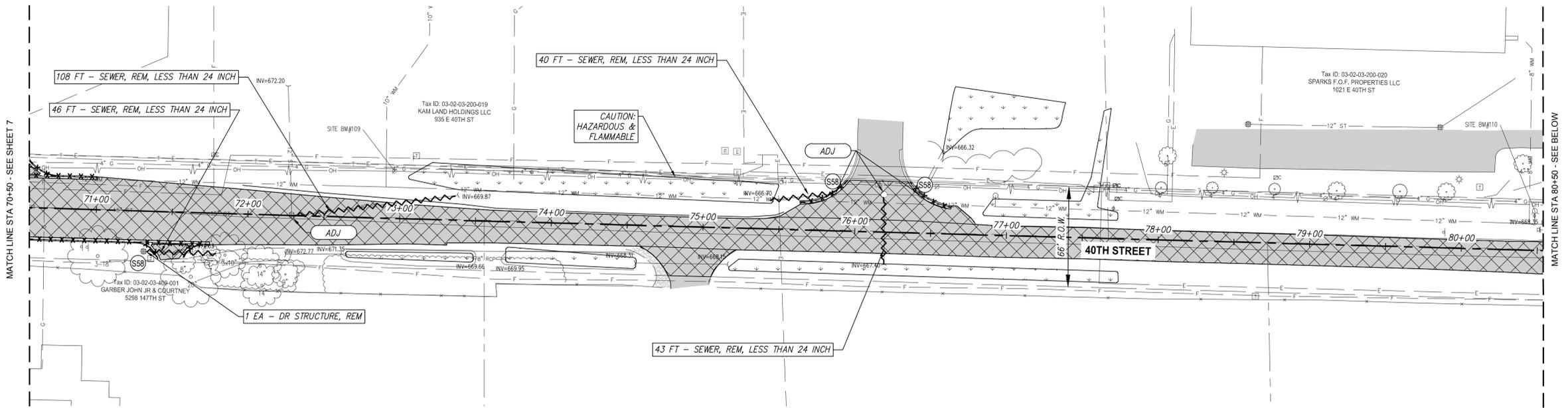
SECTION 04/05
 TOWN 4N RANGE 15W
 CITY/TOWNSHIP HOLLAND
 COUNTY ALLEGAN

NO.	DATE	SUBMITTAL

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 IF NOT ONE INCH ON THIS SHEET,
 ADJUST SCALES ACCORDINGLY

DATE	DATE
DRAFTER B. CARLSTROM	04-28-25
DESIGNER A. TEMPLE	04-28-25
CHECKED BY C. HARRINGTON	04-28-25
PROJECT MANAGER L. BERKENPAS	04-28-25
DEPARTMENT MANAGER APPROVAL J. SCHROT	04-28-25

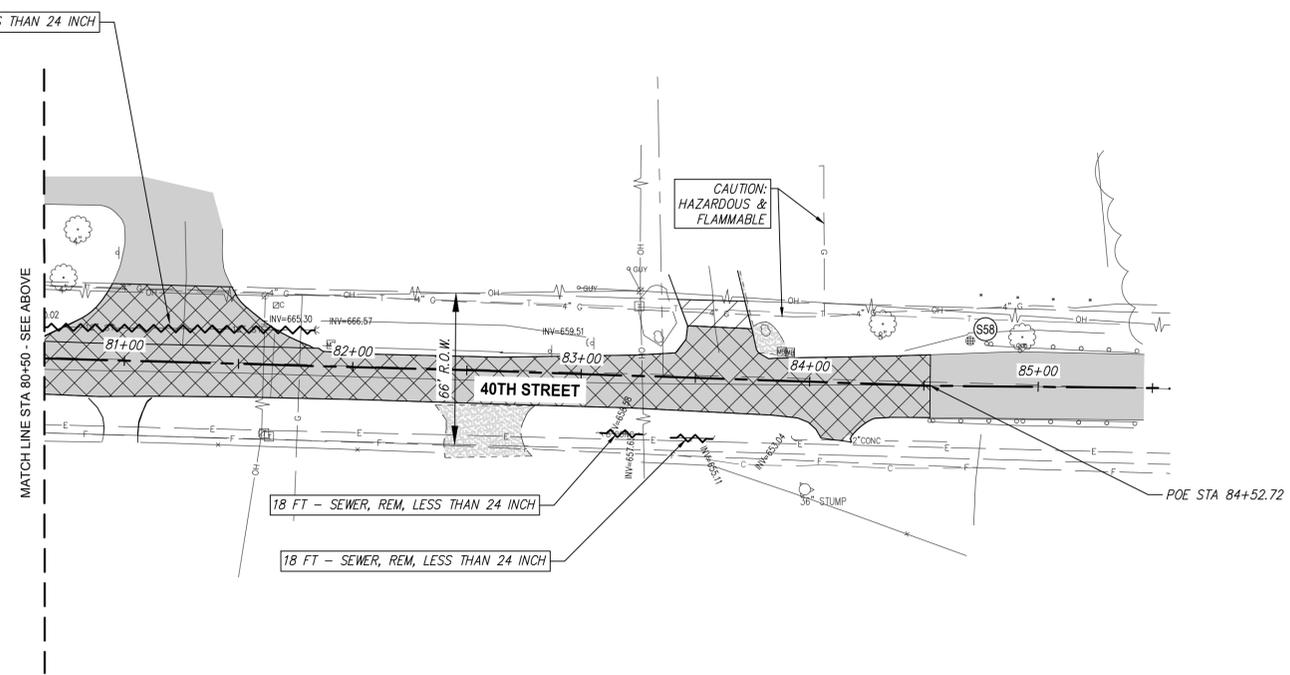
JOB NO.	DRAWING NO.
H024001	H024001REM1
SCALE:	SHEET NO.
1:40	8 OF 36



QUANTITIES - THIS SHEET

Item	Quantity	Unit
Curb and Gutter, Rem	324	Ft
HMA Surface, Rem	4391	Syd
Sewer, Rem, Less than 24 inch	391	Ft
Dr Structure, Rem	2	Ea
Dr Structure, Temp Lowering	2	Ea
Dr Structure Cover, Adj, Case 1	2	Ea
Erosion Control, Inlet Protection, Fabric Drop	3	Ea

- LEGEND**
- HMA SURFACE REMOVAL
 - COLD MILL HMA SURFACE
 - SIDEWALK REMOVAL
 - CURB AND GUTTER REMOVAL
 - SEWER AND WATER MAIN REMOVAL
 - SEWER AND WATER MAIN ABANDON
 - STRUCTURE ADJUSTMENT/ TEMP LOWERING
 - INLET PROTECTION FABRIC DROP
 - WETLAND



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Holland
MICHIGAN

GRAPHIC SCALE
 (IN FEET)
 H: 1" = 40' ; V: 1" = 5'



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40TH STREET RECONSTRUCTION

CONSTRUCTION PLAN STA 70+50 TO STA 80+50

SECTION 04/05
 TOWN 4N RANGE 15W
 CITY/TOWNSHIP HOLLAND
 COUNTY ALLEGAN

NO.	DATE	SUBMITTAL

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 IF NOT ONE INCH ON THIS SHEET,
 ADJUST SCALES ACCORDINGLY

DATE	DATE
04-28-25	04-28-25
04-28-25	04-28-25
04-28-25	04-28-25
04-28-25	04-28-25
04-28-25	04-28-25

DRAFTER: B. CARLSTROM
 DESIGNER: A. TEMPLE
 CHECKED BY: C. HARRINGTON
 PROJECT MANAGER: L. BERKENPAS
 DEPARTMENT MANAGER APPROVAL: J. SCHROT

JOB NO: H024001
 DRAWING NO: H024001CON2
 SCALE: H: 1" = 40' ; V: 1" = 5'
 SHEET NO: 15 OF 36

BENCHMARK DESCRIPTIONS

BENCHMARK #: 109
 DESCRIPTION: ARROW ON A FIRE HYDRANT, LOCATED ±25' NORTH OF THE CENTERLINE OF E. 40TH STREET AND ±250' EAST OF THE CENTERLINE OF THE DRIVEWAY FOR KAM PLASTICS, 9935 E. 40TH STREET.
 COORDINATES: N= 464558 E= 12666938 ELEV= 673.778

BENCHMARK #: 110
 DESCRIPTION: ARROW ON A FIRE HYDRANT, LOCATED ±28' NORTH OF THE CENTERLINE OF 147TH AVENUE AND ±70' WEST OF THE DRIVEWAY FOR NUVAR EAST, #1011 E. 40TH STREET.
 COORDINATES: N= 464537 E= 12667695 ELEV= 671.693

LEGEND

-  HMA SURFACE
-  CONCRETE
-  BACK OF CURB
-  GRAVEL SHOULDER
-  WETLAND

SIDEWALK TABLE

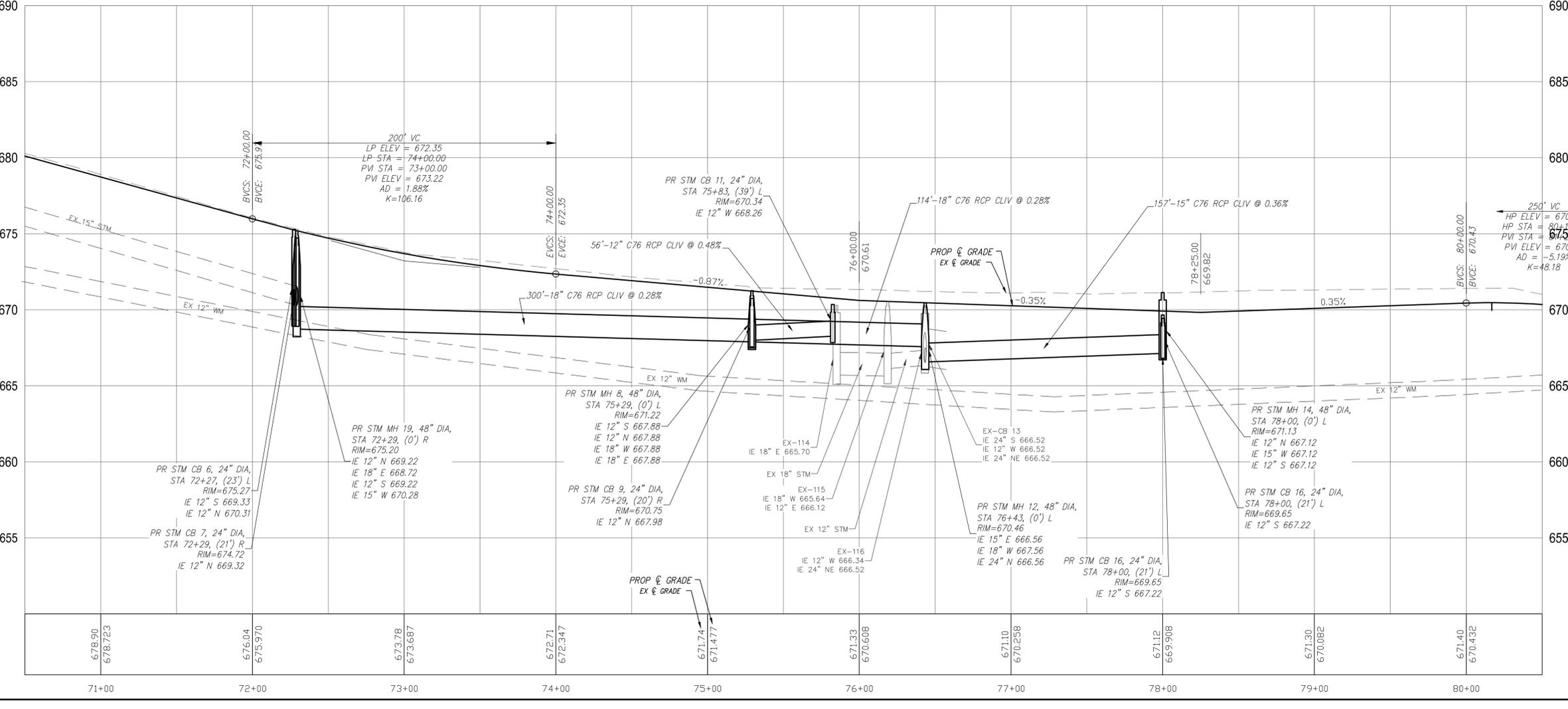
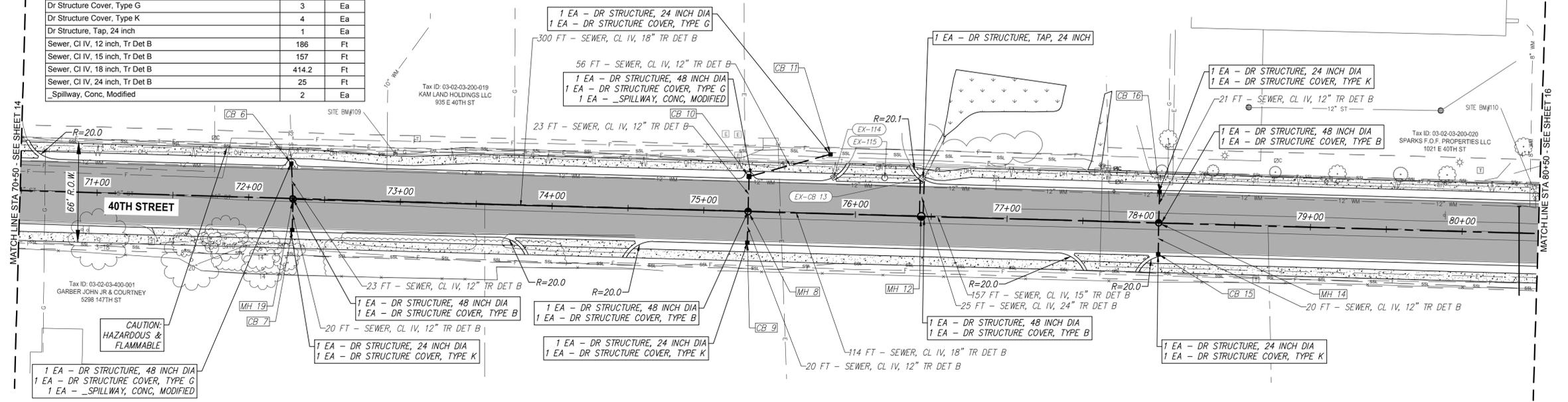
STA	BACK OF WALK OFFSET FROM ALIGNMENT	PROPOSED BACK OF WALK ELEVATION
72+00.30	27.3' (R)	676.06
72+00.31	32.6' (L)	676.15
75+00.00	25.5' (L)	671.84
75+00.00	32.5' (R)	672.32
77+30.25	32.1' (L)	671.10
77+30.25	32.7' (R)	671.07
79.37.50	32.5' (L)	671.64
79.37.50	32.5' (R)	671.64

DRIVEWAY TABLE

STATION	DRIVEWAY, NONREINF CONC, 6 INCH (SYD)
71+50, R	12.8
74+00, R	50.5
76+00, L	68.9
77+75, R	26.3

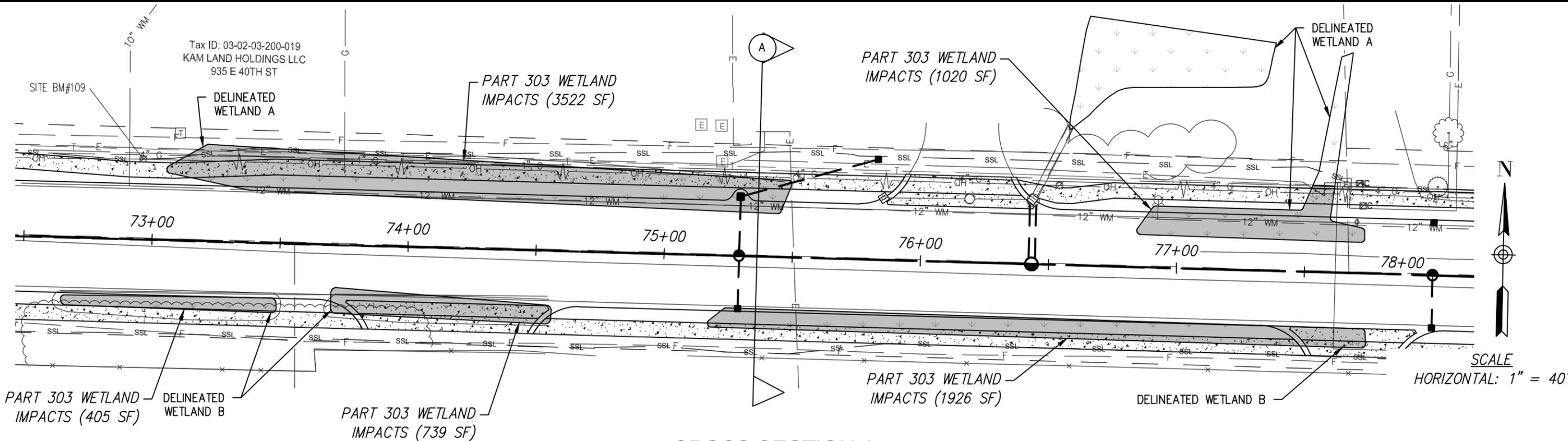
QUANTITIES THIS SHEET

Item	Quantity	Unit
Sidewalk, Conc, 4 inch	10990	Sft
Sidewalk, Conc, 6 inch	834	Sft
Curb and Gutter, Conc, Det F4	1886	Ft
Subbase, CIP	2844	Cyd
Aggregate Base, 8 inch	4812	Syd
HMA, 4EML	954	Ton
HMA, 5EML, High Stress	478	Ton
Driveway Opening, Conc, Det M	270	Ft
Driveway, Nonreinf Conc, 6 inch	158.5	Syd
Dr Structure, 24 inch Dia	5	Ea
Dr Structure, 48 inch Dia	6	Ea
Dr Structure Cover, Type B	4	Ea
Dr Structure Cover, Type G	3	Ea
Dr Structure Cover, Type K	4	Ea
Dr Structure, Tap, 24 inch	1	Ea
Sewer, Cl IV, 12 inch, Tr Det B	186	Ft
Sewer, Cl IV, 15 inch, Tr Det B	157	Ft
Sewer, Cl IV, 18 inch, Tr Det B	414.2	Ft
Sewer, Cl IV, 24 inch, Tr Det B	25	Ft
Spillway, Conc, Modified	2	Ea

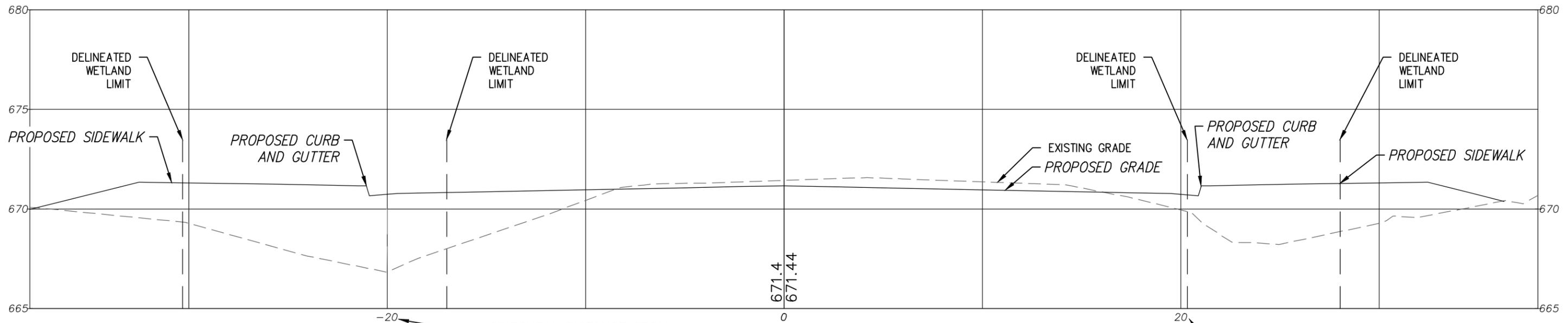


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CROSS SECTION A



WETLAND A		WETLAND B	
FILL (CYD)	CUT (CYD)	FILL (CYD)	CUT (CYD)
82.18	0.00	44.94	0.00
23.80	0.00	9.45	0.00
		17.24	0.00

SCALE
 HORIZONTAL: 1" = 5'
 VERTICAL: 1" = 5'



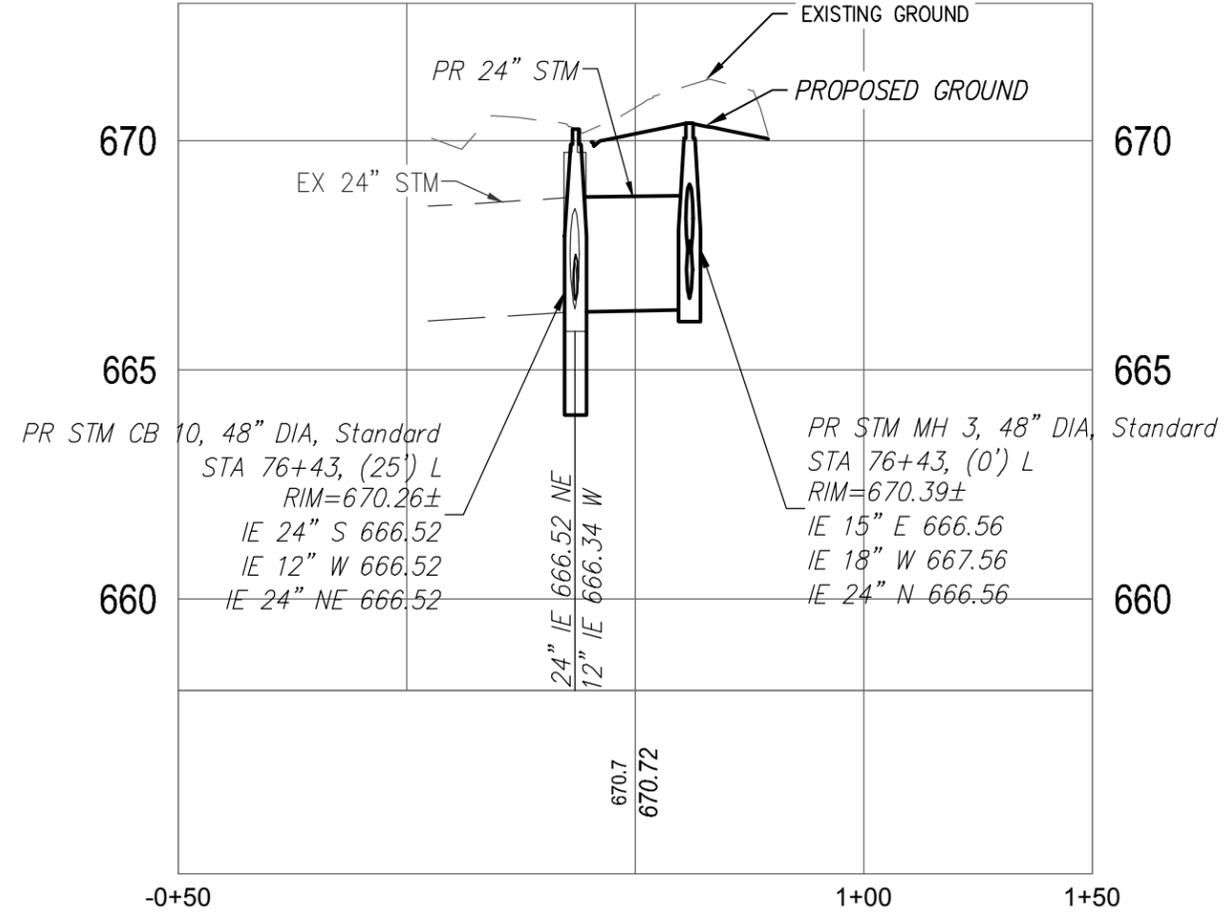
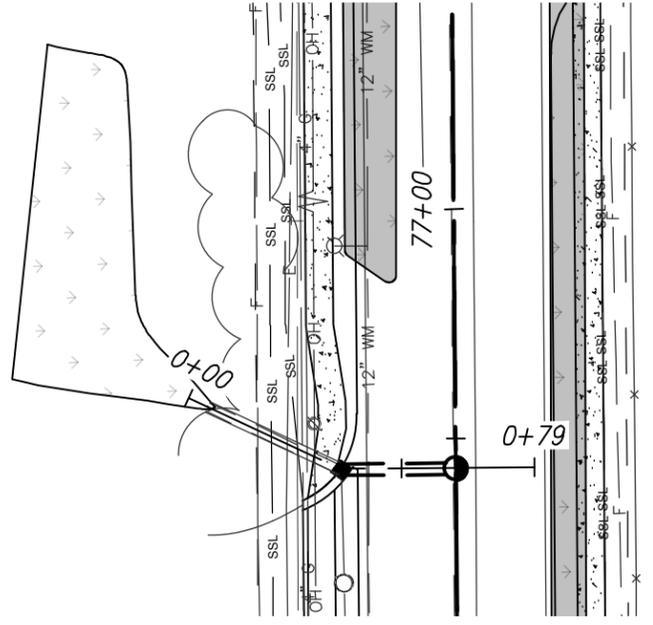
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40TH ST RECONSTRUCTION
 EGLE SUBMISSION REF #
 HQF-FNK8-BGF62
 EXHIBIT A
 WETLAND IMPACTS

DRAWN: B.CARLSTROM	DATE: 2025/09/16
CHECKED: C.HARRINGTON	DATE: NA
MANAGER: L.BERKENPAS	SCALE: H:1":40'
JOB No. HO24001	SHEET: 1 OF 1
SECTION 15 TOWN T04N RANGE 15W	
CITY OF HOLLAND	ALLEGAN COUNTY, MI

Issued On: 12/15/2025
 Expires On: 12/15/2030

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40TH ST RECONSTRUCTION
 EGLE SUBMISSION REF #
 HQF-FNK8-BGF62

EXHIBIT B
 STORM CROSS SECTION

DRAWN: B.CARLSTROM	DATE: 2025/09/16
CHECKED: C.HARRINGTON	DATE: NA
MANAGER: L.BERKENPAS	SCALE: H:1":40'
JOB No. HO24001	SHEET: 1 OF 1
SECTION 15 TOWN T04N	RANGE 15W
CITY OF HOLLAND	ALLEGAN COUNTY, MI

EGLE
 WK 047367 v1.0
 Issued On: 12/15/2025
 Expires On: 12/15/2030