

ADDENDUM No. 2

RFP No. 25-12

State Street Improvements Project

Updated Due Date: March 6, 2025, at 11:00 A.M. (local time)

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. **This Addendum includes ninety-two (92) pages (85 sheets as attachments).**

The Proposer is to acknowledge receipt of this Addendum No. 2 by signing and submitting Attachment B, including all attachments in its Proposal by so indicating in the proposal that the addendum has been received. Proposals submitted without acknowledgement of receipt of this addendum may be considered non-conforming.

The following forms provided within the RFP Document should be included in submitted proposal:

- Attachment B - General Declarations
- Attachment D - Prevailing Wage Declaration of Compliance
- Attachment E - Living Wage Declaration of Compliance
- Attachment G - Vendor Conflict of Interest Disclosure Form
- Attachment H - Non-Discrimination Declaration of Compliance

Proposals that fail to provide these completed forms listed above upon proposal opening may be rejected as non-responsive and may not be considered for award.

I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the RFP documents which are outlined below are referenced to a page or Section in which they appear conspicuously. Offerors are to take note in its review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here.

Section/Page(s)	Change
Schedule of Pricing/Cost Section III, Part E	Replaced in its entirety. Updated and added new pay items and quantities.
Detailed Specifications, Progress Clause, Pages 1-4	Updated Progress Clause to reflect March 14, 2025, as the deadline to furnish an electronic copy of the executed contract.
Detailed Specifications, Maintaining Traffic and Sequence of Construction, Pages 1-8	Revised the Maintenance of Traffic special provision regarding access to job site for UM / City of Ann Arbor employees and vendors, added events in the area, and restricting pedestrian access in the CIA.
Detailed Specifications, Trapezoid Delineators, Pages 1-2	Revised Sections C. and D. of the special provision for Trapezoid Delineator.

Detailed Specifications, Machine Grading Modified, Pages 1-7	Removed the word 'drainage' from Section a., first paragraph, seventh line of the special provision for Machine Grading, Modified. Modified Section H. (Access). Also, estimated quantities for earthwork was added.
Detailed Specifications, Storm Manhole, 48 In. Dia., with Leaching Base (0-8' deep), Pages 1-4	New Detailed Specification added.
Detailed Specifications, Sanitary Sewer Service Lead Removal and Installation, Pages 1-3	New Detailed Specification added.
Detailed Specifications, Remove Abandoned Gas Main, Page 1-2	New Detailed Specification added.
Add#1	Sign-In Sheet for Pre-Proposal Meeting.
Geotechnical Data Report	Soil Borings for State Street dated October 2021 by MTC.
Plan Sheet 20	Edited cross sections to reflect removal of sidewalk subbase, top of subgrade, 2 inches HMA, Temp Pavt, and placement of 5 inch and 10 inch aggregate pay items over water main trench.
Plan Sheets 41 - 42	Updated proposed storm plan and profile sheet to reflect changes to structures R-01 & R-02.
Plan Sheets 45 – 47	Updated proposed road construction plans to reflect changes to locations of pay item <i>DS_Trapezoid Delineator, Any Size</i> .
Plan Sheet 48	Grade changes to the southbound bus stop.
Plan Sheet 53	Grade changes to the southbound bus stop.

II. QUESTIONS AND ANSWERS

The following Questions have been received by the City. Responses are being provided in accordance with the terms of the RFP. Respondents are directed to take note in its review of the documents of the following questions and City responses as they affect work or details in other areas not specifically referenced here.

Question 1: Can you please provide the Engineers Estimate for bonding purposes?

Answer 1: The City does not provide the Engineers Estimate for this purpose. However, the estimated construction cost is \$5.7 million.

Question 2: Will the project be administered by Wade Trim, or by the City PSAA?

Answer 2: The project will be administered by Wade Trim.

- Question 3: Will the project construction staking be performed by the City PSAA or by Wade Trim?
- Answer 3: Construction staking will be provided by Wade Trim.
- Question 4: Do you know which material testing company will be utilized for this project?
- Answer 4: The City has selected IntertekPSI for material testing.
- Question 5: Can a digital copy of the bid form (in Excel format) be provided for use in assembling the proposal?
- Answer 5: Yes. Files can be shared up written request to Christopher Wall, at cwall@a2gov.org.
- Question 6: Can MDOT Class II limestone sand be used for this project?
- Answer 6: No. Class II limestone sand may not be substituted for this project.
- Question 7: Does 6A stone used for the project (utility construction – not including aggregate used for the CIP Portland cement concrete or HMA mixes) need to meet the specification of MDOT Table 902-1 and 902-2?
- Answer 7: Yes. 6A stone must meet the specifications referenced in MDOT Tables 902-1 and 902-2
- Question 8: Does the City have “attic stock” of the pavers that were utilized on the last portion of State Street? If so, can they be utilized for this project?
- Answer 8: The City does not have attic stock for this material. However, the Contractor will be expected to salvage and reuse the pavers per the pay item *Brick Pavers, Sidewalk, Rem and Reinstall*.
- Question 9: Please provide the geotechnical boring logs of soil boring numbers B-7, B-9 and B-11
- Answer 9: Two separate soil reports were collected by the City of Ann Arbor for State Street. The report included in the original bid package was created by TEC dated September 6, 2023. This report focused on infiltration testing on select locations. This addendum includes a geotechnical data report from MTC dated October 2021 that has locations B-7, B-9 and B-11.
- Question 10: Please clarify if all (proposed and existing structures) required external / internal chimney seals for all (sanitary, storm, water, etc.) will be paid for via the 05050.00 and 05051.00 pay items. If they do not, please clarify which items they should be incidental to.
- Answer 10: All sanitary and storm manholes and water gate wells require external seals. The internal seals are only required for sanitary manholes.
- Question 11: It appears that the bid form is missing pay items for 8” DI 11.25 Ells and 12” DI 90.00 Ells. Please confirm.
- Answer 11: Pay items have been added to the bid form for *8 In. 11.25° DIP Bend* (1 each) for hydrant #5 *12 In. 90° DIP Bend* (1 each) for service to Angell Hall.

- Question 12: Please confirm that existing valve box materials and adjustments as may be necessary will be paid for separately (There is no current method of payment in the bid form).
- Answer 12: Lowering of existing valve boxes is covered in Machine Grading, Modified. Should a valve box be encountered, adjustment will be paid for as Gate Box, Adjust.
- Question 13: Please provide a minimum length that will be paid for a short side water service transfer. The current method of payment for "Excavate and Backfill for Water Service Tap and Lead" is written such that short side transfers are impossible to price in a manner that is fair to the City and the Contractor (See Article 11, Section OO, Item 12 – Last Sentence (Page 11-39)).
- Answer 13: The Contractor will be paid for length of trench that is excavated to install a short side water service transfer. The Contractor is not paid for this work by the length of copper pipe installed.
- Question 14: Please include a pay item for sanitary sewer lead removal and replacement as may be required with the installation of proposed water main or storm sewer.
- Answer 14: As directed pay items have been added to the bid form titled *DS_Sanitary Service Lead, Rem, 4 to 8 inch*, and *DS_ 4 In., SDR 26 PVC Sanitary Service Lead, SD-TD-2*.
- Question 15: Please provide a pay item and detailed specifications for the removal and replacement of the masonry wall in front of the Union that will be impacted by water service installation.
- Answer 15: A pay item was not created for this work because the intent is to place/push a segment of pipe underneath the foundation while protecting the retaining wall system.
- Question 16: Please provide a typical historical detail / approximate elevation of the trolley track system.
- Answer 16: It is unknown if the tracks remain on State Street. This pay item was included for as needed work should the Contractor encounter them during construction. As-built information does not exist for the tracks. Refer to Answer 20 for more details.
- Question 17: Are the trolley track ties considered non-hazardous contaminated material?
- Answer 17: It is unknown if the materials from the trolley track, if present, are considered non-hazardous or hazardous. If encountered, the contractor should notify the Engineer to evaluate the situation.
- Question 18: Do you have anticipated quantities for excavation and embankment as associated with the machine grading pay item?
- Answer 18: The estimated quantities for excavation and embankment are 1,800 and 50 cubic yards, compacted-in-place (CIP), respectively. These estimated quantities are for informational purposes only. Earthwork associated with utility work is included in their pay items. Estimated quantities for excavation and embankment may be more or less based on field conditions encountered during construction. The Contractor is responsible for reviewing the information in the bid documents to compare to these estimated figures. If a difference exists between the two numbers, the Contractor

shall bring this to the attention of the Engineer prior to the bid opening. Claims related to estimated quantities for excavation and embankment will be denied by the Owner.

Question 19: Is the Contractor required to pay for parking meter fees during the duration of the project? If so, which pay item would cover these costs? This would include head / station removal, meter parking fees, head / station replacement, etc.

Answer 19: Within our project limits on State Street, because on-street parking is being eliminated, there are no parking meter fees to be paid by the Contractor.

Question 20: Can you provide a cross section of the existing trolley tracks? Is there any evidence to support they are still in place under the pavement. Were there any projects in the past the encountered the tracks?

Answer 20: A cross section of the State Street trolley Tracks from 100 years ago does not exist. There is no evidence to support that portions of the track system still exist. The City felt it was important for bidders to place an as needed quantity should the contractor encounter remnants in conflict with the project. Trolley track remnants were encountered as part of the Main Street and Cathrine Street projects. The rails were removed during the World War II. The concrete foundations with wood ties remained. The bases were about 7 feet wide by 12 inches deep.

Question 21: Are the plans available showing existing gas, telephone, electric and/or fiber optic lines?

Answer 21: Existing utilities that are known are reflected on Sheets 25 & 26 of the plans. Wade Trim can provide utility maps to the awarded Contractor.

Question 22: We are abandoning the dead gas within State Street. Where is the live gas main located.

Answer 22: Payment for removal of the abandoned gas main is included in the new pay item and special provision for *DS_Remove Abandoned Gas Main*. Refer to sheets 25 & 26 of the plan set to find the existing live gas main on the east side of the road right of way.

Question 23: Can you provide locations and invert information for existing sanitary leads?

Answer 23: The exact locations and invert elevations of sanitary leads are unknown. Plan Sheets 25 & 26 show approximate locations for leads to service buildings.

Question 24: Are the existing franchise utilities direct bury or run in duct banks.

Answer 24: Other than an UM owned electric duct bank located on the west side of the public road right of way, Wade Trim is of the opinion that all other utilities are direct bury. However, the contractor will be required to investigate, verify and take due caution will digging.

Question 25: Machine Grading Modified – What does this line item encompass? Is this work exclusive of undercutting, aggregate base placement and material haul off.

Question 25: The bidders are encouraged to read the details in the special provision to determine what is and is not included in the pay item, then compare to other pay items on the City website and RFP.

Question 26: Are there any permit costs that will fall under the contractor's responsibility?

Answer 26: There are no permit fees associated with the City of Ann Arbor. Wade Trim is investigating if permit fees are associated with the plumbing work inside Angell Hall.

Question 27: Will the City of Ann Arbor be the only owner involved in managing the project?

Answer 27: The contract will be awarded by the Ann Arbor City Council. The University of Michigan and Ann Arbor Area Transportation Authority (AAATA) may have influence on decisions, supported by the City, on items associated with and/or effect the University/AAATA.

Question 28: Who will oversee the interior plumbing work? Does the contractor have to be certified with the City of Ann Arbor?

Answer 28: Wade Trim will be overseeing the entire project, with assistance from a subcontractor specializing in mechanical engineering, and a liaison from the University of Michigan.

Question 29: What is the Contractor's responsibility in regard to maintaining mail / package delivery, garbage pickup, and other non-emergency services?

Answer 29: Per this addendum, a notice to bidders has been added allowing the University of Michigan and City of Ann Arbor to provide passes to specific employees and vendors that must have access to properties internal to the project limits. Furthermore, the contractor will be directed to coordinate efforts with CEI Michigan, LLC to provide access for material deliveries and waste haul off for the Angell Hall roofing project, scheduled for May to August.

Question 30: What is the depth of the irrigation pit to be abandoned?

Answer 30: The depth of the irrigation pit was measured at 8 feet.

Question 31: Can a CAD file of the drawings be provided?

Answer 31: No. CAD files are not available to the bidders. However, the CAD drawings can be provided upon request from the awarded Contractor.

Question 32: A couple times in the detail, it shows 8" of aggregate base. Is this a mistake or do you need to add an 8" agg base bid item?

Answer 32: The pay item was added for *DS_Aggregate Base, 8 In., 21AA, Modified*.

Question 33: On sheet 20, on the x-section, it shows a note that "excavate to the bottom of existing aggregate base, included in machine grading." If going off the borings, this will create more fill. Can you confirm this note is correct?

Answer 33: The note has been changed on Sheet 12 to excavate to planned subgrade.

Question 34: On the cross section sheets, there is a note about if the aggregate base is suitable, then the engineer may choose to use it. Can you elaborate on what you mean by this? The existing x-section is thicker than what is to go in, so a fill will be needed in most spots, does this mean the aggregate base may be salvaged and used over the subbase? Also, what bid items will be reduced?

Answer 34: This note applies to aggregate base material that will be needed at the end of Phase 1 to fill the water main trench prior to providing temporary HMA. Approximately 5 inches of aggregate base can be salvaged and reused, as determined by the Engineer, for base material left and right of the water main trench during Phase 2 construction.

Question 35: Please clarify when / where "Aggregate Base, 6", 21AA, Modified" will be utilized / paid?

Answer 35: This pay item applies to aggregate base placed beneath salvaged brick pavers and new planter box curb. Refer to Sheets 48 and 50.

Question 36: It appears that there should be an "Aggregate Base, 8", 21AA, Modified" pay item (no such pay item exists). The reference to 8" agg base appears in the cross sections for concrete pavement, mountable curb and valley gutter. Please confirm.

Answer 36: Refer to answer 32.

Question 37: Please provide a detail or reference for standard high back curb and gutter. Will this be typical 6 x 12 x 24 A2 high back curb?

Answer 37: Please refer to Sheet 7 for the detail called 10" wide typical planter curb.

Question 38: Please let me know if *First Defense High Capacity* is an acceptable product to bid to our customers in lieu of what is specified.

Answer 38: The City has reviewed and will allow the *First Defense High Capacity* 4-foot Diameter with sump as an alternate device specified in pay items DS_Storm Pretreatment Structure, CS-4 Inlet and DS_Storm Pretreatment Structure, CS-4 Manhole. The contractor will be required to provide documentation confirming the device meeting the plan and detailed specification requirements. The city requests the structure lid be centered over the unit when installed. All other requirements of the Detailed Specification and pay items will still apply.

Offerors are responsible for any conclusions that they may draw from the information contained in the Addendum.

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: State Street Improvements

File #: 2023-023

RFP#: 25-12 - Addendum 002

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
General					
01000.00	General Conditions, Max. \$ 300,000.00	Lump Sum	1	\$	\$ -
01001.00	Project Supervision, Max. \$ 120,000.00	Lump Sum	1	\$	\$
01002.70	DS_Project Clean-up	Lump Sum	1	\$	\$
01002.71	DS_Pavt, Cleaning	Lump Sum	1	\$	\$
01003.00	Digital Audio Visual Coverage	Lump Sum	1	\$	\$
01021.00	Erosion Control, Inlet Protection, Fabric Drop	Each	8	\$	\$
01022.00	Erosion Control, Silt Fence	Foot	1,497	\$	\$
01030.00	Tree Protection Fence	Foot	200	\$	\$
01040.00	Minor Traffic Control, Max \$ 80,000.00	Lump Sum	1	\$	\$
01041.00	Traffic Regulator Control	Lump Sum	1	\$	\$
01050.00	Sign, Type B, Temp, Prismatic, Furn & Oper	Square Foot	895	\$	\$
01051.00	Sign, Type B, Temp, Prismatic, Special, Furn & Oper	Square Foot	380	\$	\$
01062.00	Lighted Arrow, Type C, Furn and Oper	Each	2	\$	\$
01070.00	Sign, Portable, Changeable Message, Furn & Oper	Each	2	\$	\$
01080.00	Plastic Drum, High Intensity, Lighted, Furn & Oper	Each	100	\$	\$
01092.00	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn & Oper	Each	20	\$	\$
01100.00	Pedestrian Type II Barricade, Temp, Furn & Oper	Each	30	\$	\$
01101.00	Pedestrian Channelizer Device, Furn & Oper	Foot	2,957	\$	\$
01103.71	Temporary Pedestrian Ramp, Furn & Oper	Each	6	\$	\$
01103.72	DS_Pedestrian Path, Temp	Foot	400	\$	\$
01122.00	Pavt Mrkg, Wet Reflective, Type R, Tape, 6 In., Crosswalk	Foot	300	\$	\$
01126.00	Pavt Mrkg, Wet Reflective, Type R, Tape, 24 In., Stop Bar	Foot	60	\$	\$
01127.00	Pavt Mrkg, Wet Reflective, Type R, Tape, 6 In., White, Temp	Foot	100	\$	\$
01128.00	Pavt Mrkg, Wet Reflective, Type R, Tape, 6 In., Yellow, Temp	Foot	100	\$	\$
01160.70	DS_Steel Bollard	Each	2	\$	\$
01161.70	DS_Perforated Steel Square Tube Breakaway System, Modified	Each	22	\$	\$
01162.70	DS_Fnd, Perforated Steel Square Tube Breakaway System, Rem	Each	19	\$	\$
01163.70	DS_Sign, Type III, Rem	Each	37	\$	\$
TOTAL THIS PAGE (BF-1)					\$

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ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
01164.70	DS_Sign, Type IIIA, Modified	Square Foot	18	\$	\$
01165.70	DS_Sign, Type IIIB, Modified	Square Foot	132	\$	\$
01166.70	DS_Reflective Panel For Permanent Sign Support, 3 foot, Modified	Each	8	\$	\$
01167.70	DS_Ground Mtd Sign Support, Rem	Each	22	\$	\$
01168.70	DS_Qwick Kurb Sign	Each	9	\$	\$
01169.70	DS_Trapezoid Delineator, Any Size	Foot	716	\$	\$
01170.70	DS_Bikeway Delineator Post	Each	137	\$	\$
01171.70	DS_Bus Stop Shelter Assembly and Installation	Each	1	\$	\$
Removals					
02000.01	Tree, Rem, 6 In. - 12 In.	Each	3	\$	\$
02025.71	DS_Pavement, Remove	Square Yard	7,156	\$	\$
02030.00	Curb, Gutter, and Curb and Gutter, Any Type, Rem	Foot	2,033	\$	\$
02040.00	Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	Square Foot	32,655	\$	\$
02050.00	Sign, Rem, Salv	Each	24	\$	\$
02060.70	DS_Trolley Track, Remove	Square Yard	1,832	\$	\$
02070.70	DS_Parking Post, Rem	Each	33	\$	\$
02080.70	DS_Remove Abandoned Gas Main	Foot	500	\$	\$
Earthwork					
03000.70	DS_Machine Grading, Modified	Station	11.2	\$	\$
03021.00	Subgrade Undercutting, Type II	Cubic Yard	200	\$	\$
03022.00	Subgrade Undercutting, Type III	Cubic Yard	200	\$	\$
03030.01	Exploratory Excavation, SD-TD-1 , (0-10' deep)	Each	10	\$	\$
03060.00	Non-Hazardous Contaminated Material Handling and Disposal	Cubic Yard	200	\$	\$
Sanitary Sewer					
04014.01	6 In., SDR 26 PVC Sanitary Service Lead, SD-TD-2	Foot	40	\$	\$
04014.02	8 In., SDR 26 PVC Sanitary Service Lead, SD-TD-2	Foot	40	\$	\$
04014.70	DS_Sanitary Service Lead, Rem, 4 to 8 inch	Foot	100	\$	\$
04014.71	DS_4 In., SDR 26 PVC Sanitary Service Lead, SD-TD-2	Foot	20	\$	\$
04060.00	Sanitary Structure Cover	Each	7	\$	\$
TOTAL THIS PAGE (BF-2)					\$

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ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
04061.00	Sanitary Structure Cover, Adjust	Each	7	\$	\$
04061.71	DS_Sanitary Structure Adjust, Additional Depth	Foot	10	\$	\$
Sewer and Manhole Rehab					
05050.00	Internal Chimney Seal	Each	7	\$	\$
05051.00	External Chimney Seal	Each	32	\$	\$
Storm and Drainage					
06000.01	12 In., CL IV RCP Storm Sewer, SD-TD-1	Foot	483	\$	\$
06050.01	Storm Manhole, 48 In. Dia., (0-8' deep)	Each	2	\$	\$
06050.02	Storm Manhole, 48 In. Dia., Additional Depth	Foot	10	\$	\$
06050.03	Storm Manhole, 60 In. Dia., (0-8' deep)	Each	1	\$	\$
06050.04	Storm Manhole, 60 In. Dia., Additional Depth	Foot	10	\$	\$
06050.70	DS_Storm Manhole, 48 In. Dia., with Leaching Base (0-8' deep)	Each	3	\$	\$
06070.01	Storm Single Inlet, 24 In. Dia., (0-8' deep)	Each	9	\$	\$
06070.02	Storm Single Inlet, 24 In. Dia., Additional Depth	Foot	20	\$	\$
06120.03	Storm Sewer Pipe, 12 In. Dia, Rem	Foot	188	\$	\$
06140.00	Storm Sewer Structure, Rem	Each	7	\$	\$
06160.01	Storm Structure Cover	Each	4	\$	\$
06160.02	Storm Structure Cover, Adjust	Each	4	\$	\$
06160.03	Storm Structure Adjust, Additional Depth	Foot	20	\$	\$
06182.02	Underdrain, Edge, 6 In.	Foot	1,120	\$	\$
06300.70	DS_Infiltration Trench	Foot	461	\$	\$
06301.70	DS_Solid HDPE Pipe, 12 inch	Foot	42	\$	\$
06302.70	DS_Storm Control Structure, 60 In. Dia., (0-8' deep)	Each	1	\$	\$
06303.70	DS_Storm Pretreatment Structure, CS-4 Inlet	Each	4	\$	\$
06303.71	DS_Storm Pretreatment Structure, CS-4 Manhole	Each	2	\$	\$
Water Mains					
7000.01	4 In., PC 350, DIP w/ polywrap, SD-TD-1	Foot	101	\$	\$
7000.02	6 In., PC 350, DIP w/ polywrap, SD-TD-1	Foot	243	\$	\$
7000.03	8 In., PC 350, DIP w/ polywrap, SD-TD-1	Foot	138	\$	\$
TOTAL THIS PAGE (BF-3)					\$

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ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
07000.04	10 In., PC 350, DIP w/ polywrap, SD-TD-1	Foot	50	\$	\$
07000.05	12 In., PC 350, DIP w/ polywrap, SD-TD-1	Foot	1,203	\$	\$
07005.70	DS_12 In., PC 350, DIP, Jacked in Place	Foot	80	\$	\$
07009.70	DS_4 In. 45° DIP Bend	Each	2	\$	\$
07009.71	DS_4 In. 90° DIP Bend	Each	1	\$	\$
07010.02	6 In. 45° DIP Bend	Each	8	\$	\$
07011.02	8 In. 45° DIP Bend	Each	11	\$	\$
07011.03	8 In. 22.5° DIP Bend	Each	1	\$	\$
07011.04	8 In. 11.25° DIP Bend	Each	1	\$	\$
07013.01	12 In. 90° DIP Bend	Each	1	\$	\$
07013.02	12 In. 45° DIP Bend	Each	27	\$	\$
07013.03	12 In. 22.5° DIP Bend	Each	4	\$	\$
07020.03	8 In. x 6 In. DIP Reducer	Each	7	\$	\$
07020.08	12 In. x 6 In. DIP Reducer	Each	1	\$	\$
07020.09	12 In. x 8 In. DIP Reducer	Each	1	\$	\$
07020.10	12 In. x 10 In. DIP Reducer	Each	1	\$	\$
07030.07	10 In. x 10 In. x 4 In. DIP Tee	Each	1	\$	\$
07030.11	12 In. x 12 In. x 4 In. DIP Tee	Each	1	\$	\$
07030.12	12 In. x 12 In. x 6 In. DIP Tee	Each	1	\$	\$
07030.13	12 In. x 12 In. x 8 In. DIP Tee	Each	8	\$	\$
07030.15	12 In. x 12 In. x 12 In. DIP Tee	Each	4	\$	\$
07050.01	Gate Valve in Box, 6 In.	Each	2	\$	\$
07050.02	Gate Valve in Box, 8 In.	Each	1	\$	\$
07050.03	Gate Valve in Box, 10 In.	Each	2	\$	\$
07050.04	Gate Valve in Box, 12 In.	Each	2	\$	\$
07050.70	DS_Gate Valve in Box, 4 In.	Each	2	\$	\$
07060.04	Gate Valve in Well, 12 In.	Each	13	\$	\$
07080.00	Excavate & Backfill for Water Service Tap and Lead	Foot	75	\$	\$
07090.00	Water Structure Cover	Each	1	\$	\$
TOTAL THIS PAGE (BF-4)					\$

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07091.00	Water Structure Cover, Adjust	Each	1	\$	\$
07100.00	Fire Hydrant Assembly, Complete	Each	8	\$	\$
07102.00	Fire Hydrant Assembly, Rem	Each	7	\$	\$
07110.01	Sacrificial Anode, 17-pound	Each	7	\$	\$
07110.02	Sacrificial Anode, 32-pound	Each	6	\$	\$
07120.00	Gate Box, Adjust	Each	5	\$	\$
07130.01	Temporary Water Main Line Stop, 8 In. or Less	Each	6	\$	\$
07130.02	Temporary Water Main Line Stop, 10 In.	Each	3	\$	\$
07130.03	Temporary Water Main Line Stop, 12 In.	Each	3	\$	\$
07131.00	Temporary Water Main Line Stop, Additional Rental Day	Each	12	\$	\$
07140.01	Water Main Pipe, 4 In. Dia, Abandon	Foot	179	\$	\$
07140.02	Water Main Pipe, 6 In. Dia, Abandon	Foot	338	\$	\$
07140.03	Water Main Pipe, 8 In. Dia, Abandon	Foot	20	\$	\$
07140.04	Water Main Pipe, 10 In. Dia, Abandon	Foot	1,078	\$	\$
07140.05	Water Main Pipe, 12 In. Dia, Abandon	Foot	1,943	\$	\$
07150.01	Water Main Pipe, 4 in. Dia., Rem	Foot	14	\$	\$
07150.02	Water Main Pipe, 6 in. Dia., Rem	Foot	14	\$	\$
07150.03	Water Main Pipe, 8 in. Dia., Rem	Foot	14	\$	\$
07150.04	Water Main Pipe, 10 in. Dia., Rem	Foot	20	\$	\$
07150.05	Water Main Pipe, 12 in. Dia., Rem	Foot	30	\$	\$
07170.01	Gate Valve in Box, 4 In. Dia, Rem	Each	1	\$	\$
07170.02	Gate Valve in Box, 6 In. Dia, Rem	Each	4	\$	\$
07170.04	Gate Valve in Box, 10 In. Dia, Rem	Each	4	\$	\$
07170.05	Gate Valve in Box, 12 In. Dia, Rem	Each	5	\$	\$
07190.01	Gate Valve in Well, 4 In. Dia, Rem	Each	1	\$	\$
07190.02	Gate Valve in Well, 6 In. Dia, Rem	Each	2	\$	\$
07190.03	Gate Valve in Well, 8 In. Dia, Rem	Each	1	\$	\$
07190.04	Gate Valve in Well, 10 In. Dia, Rem	Each	3	\$	\$
07190.05	Gate Valve in Well, 12 In. Dia, Rem	Each	4	\$	\$
TOTAL THIS PAGE (BF-5)					\$

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: State Street Improvements

File #: 2023-023

RFP#: 25-12 - Addendum 002

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
07200.70	DS_Abandon Irrigation Pit	Lump Sum	1	\$	\$
07201.70	DS_10' x 10' x 7' Valve Pit	Each	1	\$	\$
07202.70	DS_Internal Plumbing	Lump Sum	1	\$	\$
Streets, Driveways, & Sidewalks					
08000.00	Subbase, CIP	Cubic Yard	629	\$	\$
08010.70	DS_Aggregate Base, 5 In., 21AA, Modified	Square Yard	1,644	\$	\$
08010.72	DS_Aggregate Base, 6 In., 21AA, Modified	Square Yard	49	\$	\$
08010.72	DS_Aggregate Base, 8 In., 21AA, Modified	Square Yard	109	\$	\$
08010.74	DS_Aggregate Base, 10 In., 21AA, Modified	Square Yard	5,977	\$	\$
08060.00	Hand Patching	Ton	10	\$	\$
08070.11	HMA, 3EML	Ton	919	\$	\$
08070.15	HMA, 4EML	Ton	612	\$	\$
08070.19	HMA, 5EML	Ton	612	\$	\$
08072.70	DS_HMA, Temp Pavt (4EML)	Ton	199	\$	\$
08080.03	Conc Pavt, Non-Reinf, 8 In.	Square Yard	109	\$	\$
08093.70	DS_Lane Ties, Epoxy Anchored	Each	70	\$	\$
08093.71	DS_Joint, Contraction, Cp	Foot	76	\$	\$
08093.72	DS_Joint, Contraction, Crg	Foot	12	\$	\$ -
08110.00	Conc, Curb or Curb & Gutter, All Types	Foot	2,126	\$	\$ -
08110.71	DS_Mountable Curb and Gutter	Foot	70	\$	\$ -
08110.72	DS_Planter Curb	Foot	60	\$	\$ -
08133.70	DS_Conc, Sidewalk, Fibermesh, 8 In.	Square Foot	28,314	\$	\$ -
08133.71	DS_Conc, Sidewalk Ramp, Fibermesh, 8 In.	Square Foot	2,382	\$	\$ -
08133.72	DS_Conc, Sidewalk, Fibermesh, 9 In., Raised	Square Foot	2,493	\$	\$ -
08133.73	DS_Perforated Concrete Base, 6 In.	Square Foot	27	\$	\$ -
08140.00	Brick Pavers, Sidewalk, Rem and Reinstall	Square Foot	489	\$	\$ -
08150.00	Detectable Warning Surface	Foot	525	\$	\$ -
08150.71	DS_Tactile Directional Indicator	Foot	101	\$	\$ -
08150.72	DS_Detectable Warning Surface, Temp	Square Foot	60	\$	\$ -
TOTAL THIS PAGE (BF-6)					\$

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: State Street Improvements

File #: 2023-023

RFP#: 25-12 - Addendum 002

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
08190.72	DS_Pavt Mrkg, Polymer Cement Surface, Bike, Small Sym	Each	4	\$	\$ -
08190.73	DS_Pavt Mrkg, Polymer Cement Surface, Bike Thru Arrow Sym	Each	4	\$	\$ -
08190.76	DS_Pavt Mrkg, Polymer Cement Surface, Bike Lane, Green	Square Foot	1,770	\$	\$ -
08190.78	DS_Pavt Mrkg, Polymer Cement Surface, Bus Lane, Red	Square Foot	3,200	\$	\$ -
08190.79	DS_Pavt Mrkg, Polymer Cement Surface, Bus	Each	5	\$	\$ -
08191.70	DS_Pavt Mrkg, Polymer Cement Surface, Only	Each	5	\$	\$ -
08191.71	DS_Scarification, for Polyurea Spec Mrkg	Square Foot	20	\$	\$ -
08200.05	Pavt Mrkg, Polyurea, 12 inch, Cross Hatching, White	Foot	414	\$	\$ -
08200.09	Pavt Mrkg, Polyurea, 24 Inch, Stop Bar	Foot	75	\$	\$ -
08200.10	Pavt Mrkg, Polyurea, 12 Inch, Crosswalk	Foot	786	\$	\$ -
08200.13	Pavt Mrkg, Polyurea, 6 Inch, White	Foot	3,538	\$	\$ -
08200.14	Pavt Mrkg, Polyurea, 6 Inch, Yellow	Foot	1,904	\$	\$ -
08200.30	Pavt Mrkg, Polyurea, Yield Triangle Sym	Each	28	\$	\$ -
08200.31	Pavt Mrkg, Polyurea, Speed Hump Chevron, White	Each	12	\$	\$ -
08251.00	Recessing Pavt Mrkg, Longit	Foot	4,668	\$	\$ -
08252.00	Recessing Pavt Mrkg, Transv	Square Foot	966	\$	\$ -
08300.00	Monument Box, Adjust	Each	2	\$	\$ -
Lighting and Electrical					
09010.01	Conduit, Schedule 80 PVC, 2 In.	Foot	1,130	\$	\$ -
09010.02	Conduit, Schedule 80 PVC, 3 In.	Foot	40	\$	\$ -
09010.73	DS_Conduit, Schedule 80 PVC, 6 In.	Foot	200	\$	\$ -
09020.00	Handhole, Rem	Each	2	\$	\$ -
09030.01	Handhole Assembly, 17 In. x 30 In. x 18 In.	Each	1	\$	\$ -
09030.02	Handhole Assembly, 24 In. x 36 In. x 18 In.	Each	1	\$	\$ -
09030.03	DS_U of M Handhole	Each	3	\$	\$ -
09050.70	DS_Light Pole Foundation	Each	19	\$	\$ -
09050.71	DS_DTE Street Light Pole Foundation	Each	8	\$	\$ -
09060.00	Foundation, Light Pole, Rem	Each	8	\$	\$ -
09150.70	DS_10'x10'x7' Pre-cast Power Manhole	Each	1	\$	\$ -
TOTAL THIS PAGE (BF-7)					\$

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: State Street Improvements

File #: 2023-023

RFP#: 25-12 - Addendum 002

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
09150.71	DS_Duct Bank, 6H x 1V	Foot	82	\$	\$ -
09160.70	DS_Controller and Cabinet, Rem	Each	1	\$	\$ -
09161.70	DS_Pedestrian Signal System, Accessible, Rem	Each	1	\$	\$ -
09162.70	DS_Wireless Vehicle Detection System, Rem	Each	1	\$	\$ -
09163.70	DS_Wireless Vehicle Sensor Node, Rem	Each	1	\$	\$ -
09164.70	DS_TS, Pedestrian, Pedestal Mtd, Rem	Each	1	\$	\$ -
09165.70	DS_TS, Mast Arm Mtd, Rem	Each	6	\$	\$ -
09166.70	DS_Pushbutton Station, Rem	Each	1	\$	\$ -
09167.70	DS_Pedestal, Rem	Each	1	\$	\$ -
09168.70	DS_Pedestal Fdn, Rem	Each	1	\$	\$ -
09169.70	DS_Conduit, Rem	Foot	10	\$	\$ -
09170.70	DS_Cable, Rem	Foot	2,300	\$	\$ -
09171.70	DS_Cabinet, NEMA Type	Each	1	\$	\$ -
09172.70	DS_Controller, NEMA, ATC Type, City of Ann Arbor	Each	1	\$	\$ -
09173.70	DS_Controller Fdn, Base Mtd	Each	1	\$	\$ -
09174.70	DS_Serv Disconnect	Each	1	\$	\$ -
09175.70	DS_Pedestrian Signal System, Accessible, Salv	Each	1	\$	\$ -
09176.70	DS_Wireless Vehicle Detection System, Salv	Each	1	\$	\$ -
09177.70	DS_Wireless Vehicle Sensor Node	Each	2	\$	\$ -
09178.70	DS_Wireless Vehicle Sensor Node, Salv	Each	1	\$	\$ -
09179.70	DS_Wireless Repeater	Each	1	\$	\$ -
09180.70	DS_TS, Pedestrian, One Way Pedestal Mtd, Salv	Each	1	\$	\$ -
09181.70	DS_TS, One Way Mast Arm Mtd (LED)	Each	7	\$	\$ -
09182.70	DS_Backplate, TS	Each	7	\$	\$ -
09183.70	DS_Pushbutton Station and Sign, Salv	Each	1	\$	\$ -
09184.70	DS_Pedestal, Alum, Salv	Each	1	\$	\$ -
09185.70	DS_Pedestal, Fdn	Each	1	\$	\$ -
09186.70	DS_Pelco Sign-Brac, Galaxy Cable Mount, Formed Tube	Each	1	\$	\$ -
09186.70	DS_Recable, TS	Foot	2,300	\$	\$ -
TOTAL THIS PAGE (BF-8)					\$

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: State Street Improvements

File #: 2023-023

RFP#: 25-12 - Addendum 002

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
09187.70	DS_Conduit, Schedule 40 PVC, 1-1/4 In.	Foot	2,175	\$	\$ -
09187.70	DS_Cable, Sec, 600V, 1, 3/C#6	Foot	100	\$	\$ -
09188.70	DS_Temporary Audible Message Device	Each	20	\$	\$ -
Landscaping					
10000.01	Tree, Medium, B&B	Each	2	\$	\$ -
10006.71	DS_Turf Establishment, Performance	Square Yard	1,500	\$	\$ -
10007.71	DS_Planting Soil and Mulch	Cubic Yard	78	\$	\$ -
10008.71	DS_Bike Hoop, Cored	Each	5	\$	\$ -
10031.00	Fence, Salvage and Re-erect	Foot	259	\$	\$ -
10050.00	Underground Sprinkling System, Restore	Dollar	25,000	\$ 1.00	\$ 25,000.00
TOTAL FROM THIS PAGE (BF-9):					\$
TOTAL FROM PAGE (BF-1):					\$
TOTAL FROM PAGE (BF-2):					\$
TOTAL FROM PAGE (BF-3):					\$
TOTAL FROM PAGE (BF-4):					\$
TOTAL FROM PAGE (BF-5):					\$
TOTAL FROM PAGE (BF-6):					\$
TOTAL FROM PAGE (BF-7):					\$
TOTAL FROM PAGE (BF-8):					\$
TOTAL BASE BID:					\$

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FOR
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a. Description.-

Examination of Plans, Specifications, and Work Site: Bidders shall carefully examine the Bid Form, plans, specifications, and the work site until the Bidder is satisfied as to all local conditions affecting the Contract and the detailed requirements of construction. The submission of the bid shall be considered prima facie evidence that the Bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and all requirements of the Contract.

This Contract requires water main, storm sewer, concrete curb and gutters, concrete sidewalks, bituminous paving, signal work, and associated work on State Street from South University Avenue to East William Street.

The entire work under this Contract shall be completed in accordance with, and subject to, the scheduling requirements as outlined below, in the Maintenance of Traffic and Sequence of Construction Detailed Specification, and all other requirements of the Contract Documents.

1. The Contractor is expected to be furnished with an electronic copy of the Contract, for his/her execution, on or before **March 14, 2025**. The Contractor shall electronically execute the Contract and return it, with the required Bonds and Insurance Certificate, to the City within **fourteen (14) days**. City Council review and approval of the Contract is expected on **April 21, 2025**. The Notice of Award would be provided after the Council approval. The Contractor shall not begin the work on-site before the applicable date(s) as described herein without approval from the Project Engineer, and in no case before the receipt of the fully executed Contract.
2. The Contractor shall only begin the work of this project upon receipt of the fully executed Contract and Notice to Proceed, which anticipated to be on or before **May 5, 2025**. Appropriate time extensions shall be granted if the Notice to Proceed is delayed beyond this date. Given the need to start the project on-time and meet deadlines, time extensions for Phase 1 will not be granted for delays associated with material procurement. The Contractor may elect to procure materials at their own risk prior to the Notice to Proceed being issued in order to meet the schedule if material delays are anticipated. Work on this project may not begin without an Engineer approved project schedule submitted by the Contractor that includes details of guaranteed material delivery dates. In the event that material delays result in a project start date or Phase completion dates that do not allow for the completion of work within the timeframe listed herein, the Engineer may elect to delay the project or selected phases of the project to 2026. All bid prices shall be held per the approved contract regardless of delays and/or schedule changes.

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3. **Phase 1 Work** – All water main installation shall be completed in Phase 1 as depicted in the plans. Pavement, curb and gutter, and sidewalk removals will be limited to only install the water main. Note that the Engineer may request watermain shutdowns to occur during non-standard hours to ensure minimal interruption to businesses along State Street. All services shall be installed and connected during this phase. Existing watermain shall be abandoned once the proposed Phase 1 watermain is tested, accepted, and put in service. Install aggregate and HMA to open road and sidewalks to traffic per description below.

Phase 1 shall be completed in its entirety and open to traffic by **July 11, 2025**. All Phase 1 work shall be completed prior to the beginning of Phase 2 work.

4. **Ann Arbor Art Fair Week (July 14, 2025 – July 20, 2025)** - This project falls within the limits of the Ann Arbor Art Fair. No work is allowed from July 12, 2025, to July 20, 2025. Phase 1 shall be completed, and the site shall be left in a clean, safe and orderly condition and all equipment and stored material shall be relocated off-site. Prior to work stoppage all businesses shall have pedestrian access in place, all equipment and stored materials will be relocated off site, all street surfaces shall have a temporary HMA surface, and all unnecessary barricades removed. If the milestones, adjusted for approved extensions of time, are delayed, temporary pavement and provisions needed to ensure the site meets conditions listed above will be at the sole cost of the Contractor.
5. **Phase 2 Work** – Phase 2 work shall not begin until Monday, July 21, 2025, unless otherwise approved by the Engineer. Work includes pavement removal, installation of storm sewer, paving, curb and gutter, sidewalks, traffic signals, restoration, pavement markings, signage and all other work included in the Contract for this intersection. It is understood that turf establishment will take place in April 2026. However, the Contractor shall be responsible to use approved soil erosion and sedimentation control measures (SESC) to cover and maintain disturbed areas throughout the winter of 2025-2026.

Phase 2 shall be completed in its entirety and open to traffic by **November 15, 2025**.

6. **Phase 3 Work** – All turf establishment shall be in place and approved by the Engineer by **May 23, 2026**.

Time is of the essence in the performance of the work of this Contract. The Contractor is expected to mobilize sufficient personnel and equipment and work throughout all authorized hours to complete the project by the final completion date. Should the Contractor

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demonstrate that they must work on some Sundays in order to maintain the project schedule, they may do so between the hours of 9:00 a.m. and 5:00 p.m. with prior approval from the City. There will be no additional compensation due to the Contractor for work performed on Sundays.

Prior to the start of any construction, the Contractor shall submit a detailed schedule of work for the Engineer's review and approval. Work shall not be started until a schedule is approved in writing by the Engineer. The proposed schedule must fully comply with the scheduling requirements contained in this Detailed Specification. The Contractor shall update the approved work schedule upon request by the Engineer and present it to the Engineer within seven days of said request.

The City selected contractor will provide written weekly construction updates to the City, AAATA, the University of Michigan, and the Engineer. Equally, the contractor will consult with the City, the University of Michigan and the Engineer on any unanticipated scope changes that impact the City, AAATA, and properties or operations of the University of Michigan.

The Engineer may delay or stop the work due to threatening and/or inclement weather conditions. The Contractor shall not be compensated for unused materials or downtime due to weather conditions. The Contractor is solely responsible for protecting utilities, repairing all damages to the work and to the site, including road infrastructures, road subgrades, utilities, and any adjacent properties, which are caused as a result of working in the inclement weather conditions.

The Contractor shall not work in the dark except as approved by the Engineer and only when lighting for night work is provided as detailed elsewhere in this Contract. The Engineer may stop the work or may require the Contractor to defer certain work to another day, if, in the Engineer's opinion, the work cannot be completed within the remaining daylight hours, or if inadequate daylight is present to either properly perform or inspect the work. The Contractor will not be compensated for unused materials or downtime, when delays or work stoppages are directed by the Engineer for darkness and/or inadequate remaining daylight reasons. The Contractor is solely responsible for protecting utilities, repairing all damages to the work and to the site, including road infrastructures, road subgrades, utilities, and any adjacent properties, which are caused as a result of working in the dark.

Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor, **\$3,000.00** in Liquidated Damages, and not as a penalty, for delays in the completion of the work for each and every calendar day beyond the "Open to Traffic" dates for each phase and "Calendar Days to Complete" for

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each sub-phase, as required by this Detailed Specification and the Maintenance of Traffic Detailed Specification.

Liquidated Damages will be assessed until the required work is completed in the current construction season. If, with the Engineer's approval, work is extended beyond seasonal limitations, the assessment of Liquidated Damages will be discontinued until the work is resumed in the following construction season. Liquidated Damages will be assessed until all required work is completed for each phase as defined herein. There are no maximum limit on the Liquidated Damages amounts that may be charged to the Contractor.

DETAILED SPECIFICATION
FOR
MAINTAINING TRAFFIC AND SEQUENCE OF CONSTRUCTION

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a. Description.-

Traffic shall be maintained in accordance with the City of Ann Arbor Public Services Department Standard Specifications and as specified in Sections 104.11, 812, and 922 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, the 2011 Michigan Manual of Uniform Traffic Control Devices (MMUTCD), and as described herein.

The following, and herein included Michigan Department of Transportation (MDOT) Maintaining Traffic Typicals and Work Zone Device Details apply to the project: 101-GEN-SPACING-CHARTS, 102-GEN-NOTES, WZD-100-A, and WZD-125-E.

These maintaining traffic provisions are subject to change in the event of special community activities.

The Contractor shall furnish, erect, maintain and, upon completion of the work, remove all traffic control devices and barricade lights as required on the project for the safety and protection of local traffic. This includes, but is not limited to, temporary advance, regulatory, and warning signs; barricades and channelizing devices at intersections and on streets where traffic is to be maintained; barricades at the ends of the project and at right-of-way lines of intersecting streets, and traffic control devices for moving construction operations.

B. Materials.-

The materials and equipment shall meet the requirements specified in the corresponding sections of the MDOT 2020 Standard Specifications for Construction and the 2011 MMUTCD.

All signs shall be of sizes shown on the plans, unless otherwise directed by the Engineer. Install temporary signs that are to remain in the same place for 14 days or more on driven posts. Install all other temporary signs on portable supports. All signs shall have a minimum bottom height of 7.0 feet.

Channelizing devices required for all lane closures shall be plastic drums. 42 inch channelizing devices are permissible with approval from the Engineer.

Cold Patching Material shall meet the requirements of the City of Ann Arbor Standard Specifications for Construction and as approved by the Engineer.

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FOR
MAINTAINING TRAFFIC AND SEQUENCE OF CONSTRUCTION

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MAINTENANCE OF LOCAL TRAFFIC

Local access shall be maintained at all times for emergency vehicles (24 hours), refuse pick-up, mail delivery, business deliveries, and ingress/egress to public and private properties. The University of Michigan and City of Ann Arbor will provide special access passes to employees and vendors as needed to have access to the project site. The Contractor shall provide access to UM's designated roofing contractor to provide material deliveries to Angell Hall and refuse haul off as needed.

Contractor must accommodate the safe access to the buildings and businesses located within construction area. Unless approved in writing to the Engineer, pedestrian access to the front of all buildings must be maintained throughout the construction period. An ADA compliant sidewalk width shall be provided and maintained along State Street and South University Avenue throughout the duration of the project. Continuous pedestrian barricades will be provided between the pedestrian path and work zone. When it is necessary and approved to close a section of sidewalk, temporary pedestrian ramps and pathways shall be implemented to maintain continuous and safe pedestrian access along the corridor. Pedestrian ramp crossings at intersections shall always be maintained at three of four corners. Only one corner of an intersection can be closed at a time. All pedestrian access shall be ADA compliant. For work affecting pedestrian crossings, use the included staging sheets and typical details to maintain pedestrian traffic.

Pedestrian building entrances shall not be blocked without written authorization from the Engineer and arrangements are made with the affected property owner(s). When it becomes necessary to temporarily block building entrances, the Contractor shall notify the Engineer seventy-two (72) hours in advance of any work planned on or near business entrances, and when possible, stage sidewalk work so that it is constructed part-width. The Engineer will not allow the Contractor to prohibit access to businesses during any phase of construction, unless agreed upon with the property owner(s) and authorized in writing by the Engineer.

At times, when it becomes necessary to temporarily obstruct local traffic during the performance of the work, the Contractor shall provide traffic regulator control in conformance with Chapter 6E of the MMUTCD, Sections 6E.01 thru 6E.08. A minimum of two traffic regulators are required. The cost of traffic regulator control shall be included in the Contract pay item "Minor Traffic Devices, Max \$80,000".

A lane-closure permit shall be obtained by the Contractor from the City of Ann Arbor Engineering Unit, at least 48 hours in advance of any proposed lane or street closing. No lane closures shall be permitted during the following weekends, unless approved by the engineer:

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- Memorial Day (3:00 PM Friday May 23, 2025 – 7:00 AM Tuesday, May 27, 2025)
- Independence Day (3:00 PM Friday July 3, 2025 – 7:00 AM Monday, July 7, 2025)
- Labor Day (3:00 PM Friday August 29, 2025 – 7:00 AM Tuesday, September 2, 2025)
- Saturday's of home University of Michigan football games.
- University of Michigan Fall Semester 2025 move-in week.
- If the project is delayed, no work or lane closures, shall be performed during University of Michigan home football games.

All streets and sidewalks that can be open shall be open to motorized and non-motorized traffic.

During non-working periods, any area with uncompleted work shall have crush approved drums at specific locations and protective fencing, as directed by the Engineer, at no additional cost to the project.

The hours of work on all Local streets are 7:00 a.m. to 8:00 p.m., Monday through Saturday, or as specified on the lane-closure permit. No equipment will be allowed in the street before or after these hours. Local streets may only be closed to through traffic (local access only) with written authorization of the Engineer. Work must be completed each day such that all streets are re-opened to through traffic by 8:00 p.m. unless otherwise specified, directed, or authorized in writing by the Engineer. All major changes in traffic control shall be made either between 9:30 a.m. and 3:30 p.m. or between 7:00 p.m. and 6:30 a.m. in order to minimize interference with rush-hour traffic. All traffic controls must be in-place and ready for traffic each day by 6:30 a.m. and 3:30 p.m.

The Contractor shall temporarily cover conflicting traffic and/or parking signs when directed by the Engineer included in the pay item "Minor Traffic Devices, Max \$80,000".

The Contractor shall use quantities of dust palliative, maintenance aggregate, and cold patching/HMA mixtures for use as temporary base, surfacing, and dust control at utility crossings, side roads and driveways (wherever required to maintain traffic), and where directed by the Engineer to maintain local access. The cost for the use of dust palliative, maintenance aggregate, cold patch and/or hot mix asphalt mixtures, as required and directed by the Engineer for maintenance of traffic and local access, shall be included in Contract pay item "General Conditions, Max \$300,000", and it will not be paid for separately.

The work of maintaining and relocating existing warning, regulatory and/or guide signs; and of removing, salvaging and reinstalling existing signs and supports is included in the bid price for the Contract pay item "Minor Traffic Devices, Max \$80,000".

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Mail and paper delivery shall not be interrupted during the construction. Upon completion of the construction, all mailboxes and newspaper boxes, including their supports, shall be repositioned in their permanent locations as approved by the Engineer. This work shall be included the Contract unit price for the Contract pay item "General Conditions, Max \$300,000", when applicable, and it will not be paid for separately.

The Contractor shall perform the work of this Contract while maintaining traffic in accordance with the Contract Documents as specified herein. No traffic shall be allowed on newly placed asphalt surfaces until rolling has been satisfactorily completed and the surface has cooled sufficiently to prevent damage from traffic.

Each pressure distributor, paver and roller shall be equipped with at least one approved flasher light which shall be mounted on the equipment so as to give a warning signal ahead and behind.

The Contractor shall furnish, erect, maintain, and upon completion of the work, remove any and all traffic control devices utilized on the project.

Construction Influence Area (CIA).- The CIA shall include the area from POB to POE within the Right-of-way of State Street, South University Avenue and East William Street as shown in the plans. The CIA shall include the affected portions of the driveways along and contiguous with these roadways.

In addition, the CIA shall include the rights-of-way of all roadway segments used for detours and all locations that contain advance warning and/or regulatory signs, pavement markings, plastic drums, traffic delineators, and all other project related traffic maintenance items.

Police and Fire.- The Contractor shall notify local police, fire departments and emergency response units a minimum of three business days (72 hours) prior to the closure of any roads, or traffic shifts causing restricted movements of traffic or restricted access.

Work Performed by City of Ann Arbor Signs and Signals Unit.- **No additional or extra compensation will be paid for any delays caused by City of Ann Arbor Signs and Signals.**

Signal Modifications

Signal timing and phasing modifications are anticipated for construction at East William and State Street, North University and State, and Liberty and State. The Contractor shall coordinate work with the City ahead of any decided changes in the traffic control.

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Sign Reinstallation

As necessary during construction, the Contractor shall be responsible for logging the legend and location of any signs that:

1. Must be removed to facilitate the construction process;
2. Are to be permanently removed, or;
3. Are to be permanently relocated.

The Contractor shall remove the signs as indicated on the plans. The Contractor will have all proposed signs, posts, and associated mounting materials delivered to the City of Ann Arbor Public Works, W.R. Wheeler Service Center, 4251 Stone School Road, Ann Arbor, MI. After construction is complete, but before opening any roadway to traffic, City of Ann Arbor Signs and Signals will install all signs in their proper, permanent location. To coordinate sign installation/reinstallation, the Contractor shall notify the Signs and Signals Unit at least five (5) working days (Monday-Friday) in advance of when the sign work will need to be completed. It is the responsibility of the Contractor to ensure that City of Ann Arbor Signs and Signals Unit is scheduled, kept apprised of the progress of construction, and notified a second time immediately (4 working hours) prior to the need to complete the sign work. The installation/reinstallation of all signs shall be completed by the City of Ann Arbor Signs and Signals Unit.

PROJECT SCHEDULE MILESTONES:

In general, the project will proceed in three Phases. The project takes place within a heavy university pedestrian environment. The Contractor is required to work with the City of Ann Arbor and University of Michigan to minimize disruptions as much as possible.

Phase 1 Work – All water main installation shall be completed in Phase 1 as depicted in the plans. Pavement, curb and gutter, and sidewalk removals will be limited to only install the water main. Note that the Engineer may request watermain shutdowns to occur during non-standard hours to ensure minimal interruption to businesses along State Street. All services shall be installed and connected during this phase. Existing watermain within Phase 1 limits shall be abandoned once the proposed Phase 1 watermain is tested, accepted, and put in service.

Phase 1 shall be completed in its entirety and open to traffic by **July 11, 2025**. All Phase 1 work shall be completed prior to the beginning of Phase 2 work.

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Sub-Phase 1 Maintenance of Traffic – State Street from South University Avenue to East William Street will be closed to thru traffic in both directions. Access for emergency traffic will be maintained at all times. One midblock crosswalk shown on the plans shall remain open at all times.

Sub-Phase 1A Maintenance of Traffic – State Street from South University Avenue to East William Street, and the intersection of State Street and South University Avenue will be closed to thru traffic in all directions **for no more than 14 calendar days**. Access for emergency traffic will be maintained at all times. This phase will be used for the connection to the existing watermain in the South University Avenue intersection to the Michigan Union and tie-in to the existing water main. One midblock crosswalk shown on the plans shall remain open at all times.

Sub-Phase 1B Maintenance of Traffic - State Street from South University Avenue to East William Street, and North University Avenue from State Street to 200 feet east of State Street will be closed to thru traffic in all directions **for no more than 3 calendar days**. Access for emergency traffic will be maintained at all times. The intersection of State Street and North University shall not be closed to traffic during the subphase. This phase will be used for the connection to the existing fire hydrant to remain in service on North University Avenue. One midblock crosswalk shown on the plans shall remain open at all times.

Note: Phase 1A and 1B shall not occur at the same time.

Ann Arbor Art Fair Week (July 14, 2025 – July 20, 2025) - This project falls within the limits of the Ann Arbor Art Fair. No work is allowed from July 12, 2025 to July 20, 2025. Phase 1 shall be completed, and the site shall be left in a clean, safe and orderly condition and all equipment and stored material shall be relocated off-site. Prior to work stoppage all businesses shall have pedestrian access in place, all equipment and stored materials will be relocated off site, all street surfaces shall have a temporary HMA surface, and all unnecessary barricades removed. If the milestones, adjusted for approved extensions of time, are delayed, temporary pavement and provisions needed to ensure the site meets conditions listed above will be at the sole cost of the Contractor.

Phase 2 Work – All Phase 2 work shall not begin until after the Ann Arbor Art Fair unless otherwise approved by the Engineer. Work includes pavement removal, installation of storm sewer, paving, curb and gutter, sidewalks, traffic signals, restoration, pavement markings, signage and all other work included in the Contract for this intersection. It is understood that turf establishment will take place in April 2026. However, the Contractor shall be responsible to use approved soil erosion and sedimentation control measures (SESC) to cover and maintained disturbed areas throughout the winter of 2025-2026.

DETAILED SPECIFICATION
FOR
MAINTAINING TRAFFIC AND SEQUENCE OF CONSTRUCTION

WT:MHM

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Phase 2 shall be completed in its entirety and open to traffic by **November 15, 2025**.

Phase 2 Maintenance of Traffic – State Street from South University Avenue to East William Street will be closed to thru traffic in both directions. Access for emergency traffic will be maintained at all times. The Contractor shall apply for a permit from the City of Ann Arbor to partially close the East William Steet intersection to install traffic signal items depicted on the plans. One midblock crosswalk shown on the plans shall remain open at all times.

The contractor should also be aware of the following events within the project area. If the project is delayed, the contractor will be required to make provisions following the “**Ann Arbor Art Fair**” paragraph herein:

- Ann Arbor Summer Festival & Top of the Park; June 13 – July 6, 2025
- Ann Arbor Firecracker 5k & Ann Arb or Jaycees 4th of July Parade – July 4, 2025
- Ann Arbor Pride, August 2, 2025

Measurement and Payment.- The estimated quantities for maintaining traffic is based on the maintenance of traffic plans. Any additional signing, traffic control devices, pavement markings, or the like required to expedite the construction, beyond that which is specified, shall be at the Contractor's sole expense.

The completed work as measured shall be paid at the Contract unit price for the following Contract pay items:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Traffic Regulator Control	Lump Sum
Minor Traffic Devices, Max \$80,000.00	Lump Sum
Barricade, Type III, High Intensity, Double Sided, Lighted, Furn and Oper	Ea
Plastic Drum, High Intensity, Lighted, Furn and Oper	Ea
Sign, Type B, Temp, Prismatic, Furn and Oper.....	Sft
Sign, Type B, Temp, Prismatic, Spec, Furn and Oper.....	Sft
Sign, Portable, Changeable Message,Furn & Oper	Ea
Lighted Arrow, Type C, Furn & Oper	Ea
DS_Temporary Pedestrian Ramp, Furn and Oper	Each
Temporary Pedestrian Mat, Furn and Oper.....	Foot
DS_Detectable Warning Surface, Temp	Sft
DS_Pedestrain Path, Temp.....	Foot
DS_Temporary Audible Message Device.....	Each
Pedestrian Channelizer Device, Furn and Oper	Each

DETAILED SPECIFICATION
FOR
MAINTAINING TRAFFIC AND SEQUENCE OF CONSTRUCTION

WT:MHM

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Pedestrian Type II Barricade, Temp, Furn and Oper	Each
Pavt Mrkg, Wet Reflective, Type R, Tape, 24 In., Stop Bar.....	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, 6 In., Crosswalk	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, 6 In., White, Temp	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, 6 In., Yellow, Temp.....	Foot

The unit price for this item of work shall include all labor, material, and equipment costs required to perform the work specified herein and includes both furnishing and operating the devices.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TRAPEZOID DELINEATORS

WT:AJK/MHM

1 of 2

02/20/2025

a. Description. This work consists of providing all labor, materials, and equipment required to furnish and install trapezoid delineators where shown and detailed on the plans in accordance with City of Ann Arbor 2025 Public Services Standard Specifications, the manufacturer's instructions, except as modified herein, and as directed by the Engineer.

b. Materials. The Contractor will furnish TekWay Trapezoid Delineators manufacture by StrongGo or an Engineer approved equal.

The Contractor will ask Owner for color information prior to providing submittals and ordering materials.

c. Construction. The Contractor shall engage an experienced installer qualified for installation of this type and who has successfully completed detectable warning installations similar in material, design and extent to that indicated for this project.

Preparation

During all concrete pouring and tile installation procedures, the Contractor shall ensure adequate safety guidelines are in place and that they are in accordance with the applicable industry and government standards.

The physical characteristics of the concrete will be consistent with these Specifications while maintaining a slump range of 4 inches to 7 inches to permit solid placement of the cast-in-place tactile tile system.

The concrete will be poured and finished, true and smooth to the required dimensions and slope prior to tile placement.

Installation

The Contractor will not be allowed to install Trapezoid Delineator Tiles until all submittals have been reviewed and approved by the Engineer.

The Contractor will install Trapezoid Tactile Warning Delineator tiles in accordance with the manufacturer's instructions.

The largest size tile manufactured will be used to minimize the amount of installation-seams, unless directed by the Engineer otherwise. The tiles will be placed in accordance with the drawings. Cutting of the tiles may be required. Tile to tile joints between Trapezoid Tactile Warning Delineator tiles must be laid out by adjoining factory

edges. A 12-inch sloped end section shall be used whenever a gap is provided per the locations referenced on the plans. The Contractor shall order a sufficient number of full length tiles and end sections to complete the work.

The Contractor will install tiles into the fresh concrete using a rubber mallet to ensure that there are no voids or air pockets, and the edges of tile are to be flush with the adjacent surface or as the drawings indicate to permit proper water drainage and eliminate tripping hazards between adjacent finishes.

While the concrete is workable, the Contractor will use a 1/8 inch radius edging tool to create a finished edge of concrete, and then a steel trowel will be used to finish the concrete around the tile’s perimeter.

Cleaning and Protection

The Contractor will protect trapezoid tactile warning delineators against damage during construction to comply with tile manufacturer’s Specifications.

During and after the tile installation and the concrete curing stage, the Contractor will exhaust all efforts to prevent walking, leaning, or other external forces from loading the tile and/or to displace the tile, causing a void between the underside of tile and its concrete substrate.

The Contractor will protect trapezoid tactile warning delineators against damage from rolling loads following installation by covering with plywood or hardwood.

The Contractor will clean tiles prior to the date scheduled for inspection and remove protective covering.

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

<u>Contract Item (Pay Item)</u>	<u>Unit</u>
DS_Trapezoid Delineator, Any Size.....	Foot

Payment for **DS_Trapezoid Delineator, Any Size** will be measured by the foot for units installed and will include all costs for labor, materials, and equipment required to furnish and install the materials as shown on the plans and as specified herein. This payment item covers full length tiles as well as sloped end sections.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
MACHINE GRADING, MODIFIED

WT:AJK:MHM

1 of 7

02/26/2025

a. Description. This work consists of providing all labor, material, and equipment required to excavate, fill, and grade to establish proposed subgrade elevations as described in Section 205 of the Michigan Department of Transportation Standard 2020 Specifications for Construction with the following exceptions: includes hauling, disposal, storing and stockpiling topsoil, salvaging and stockpiling of aggregate base, miscellaneous removals, furnishing and compacting granular material, subgrade manipulation, proof rolling, temporary lowering of structures, removing, salvaging, storing, and reinstalling site furnishings with new hardware, protecting existing utilities, site preparation for plantings, and all work described herein within the grading limits indicated on the plans.

Earth grades will be constructed by saw cutting and excavating and disposing of existing bituminous pavement, concrete pavement, sidewalks, curbs, gutters, culverts, soil, rock, vegetation (including trees, stumps, brush, shrubs, roots, and logs) or other deleterious materials; removing and salvaging or disposing of topsoil; and by placing and compacting existing approved fill material or imported MDOT Class II Granular Material.

All work will be completed in accordance with Sections 204, 205, 403, 501, 815 of the Michigan Department of Transportation 2020 Standard Specifications for Construction, except as modified herein.

b. Materials. All materials will meet the requirements as specified in Sections 205 and 902 of the Michigan Department of Transportation 2020 Standard Specifications for Construction, except as specified herein.

Fill material will be suitable material obtained from the site approved by the Engineer or imported MDOT Class II granular material.

Hardware furnished for site furnishings will match the existing in-kind and will have anchors appropriate for the fastening application.

c. Soils Information. Soil information provided as part of the contract documents is for informational purposes only and will not relieve the Contractor of the responsibility of investigating all local conditions before bidding.

d. Contractor's Calculations. Existing and proposed cross sections are provided in the plans. The Contractor will perform his/her own computations and is responsible to inspect the site to determine his/her own estimate of the quantities of work involved. Deviations between the existing and proposed cross-sections shown on the plans will not be cause for additional compensation.

e. Permit to Place. The Engineer will issue to the Contractor a "Permit to Place" for the aggregate base. If the Contractor does not immediately place the aggregate base, the Contractor will be solely responsible for the protection of the subgrade and will

conduct operations and provide the necessary equipment to ensure the satisfactory completion of the work without damaging the subgrade. This may require the transportation and movement of materials over additional distances in lieu of driving upon the unprotected or partially unprotected subgrade.

f. Suspension of Work. The Engineer will have the authority to suspend the work wholly or in part for any periods of time as may be deemed necessary due to unsuitable weather or such other conditions which are considered unfavorable for the prosecution of the work or for any other condition or reason deemed to be in the best interest of the project. The Contractor will not suspend work without giving prior written notification to the Engineer.

g. Coordination. The Contractor will coordinate all work with utility companies and others where work by others is within the areas indicated for Machine Grading on the plans or at the direction of the Engineer.

h. Access. The Contractor will maintain access to the project site per the Maintenance of Traffic special provision.

i. Removal and Salvaging of Topsoil and Aggregate Base. The Contractor will remove, salvage, and stockpile topsoil and/or aggregate base and perform all related work in accordance with Section 205.03.A.1 and/or 205.03.A.2 of the Michigan Department of Transportation Standard Specifications for Construction to prepare for the existing surface for placement of 4 inches of topsoil to accommodate turf establishment in the areas indicated on the plans.

j. Miscellaneous Removals. The Contractor will remove bituminous, aggregate, and concrete materials around manholes, structures, and utility covers, remove bituminous curbs, driveway wedges, overlays on existing curb and gutter, and other miscellaneous bituminous surfaces, and remove any surface feature located within the grading limits indicated on the plans or as directed by the Engineer for which there is no specific pay item in the proposal for its removal.

The Contractor will remove and dispose of all abandoned cables, conduit, and pipe encountered within the limits of any earthwork excavation including undercuts at the direction of the Engineer. Where the inverts of abandoned, or to be abandoned or removed, conduits or pipe are less than 16 inches below the bottom of any earth excavation or undercut, the conduits and/or pipe will be removed and the resulting void filled with an Engineer approved material. The fill material will be compacted to 95% of its maximum unit weight in lifts not exceeding 12 inches.

The Contractor will remove aggregate base furnished as temporary aggregate to cover utility trenches. The Contractor may elect to reuse aggregate base at the approval of the Engineer.

k. Protection of the Grade. The work will be kept well drained at all times. The Contractor will repair all areas of the work that become damaged due to rain at the Contractor's expense as directed by the Engineer.

The Contractor will be responsible for the maintenance of the foundation, roadway embankment, and subgrade. Any damage caused by traffic or the Contractor's operations, to the foundation, roadway embankment or subgrade will be remedied by the Contractor at his/her sole expense.

The Contractor will conduct his/her operations and provide the necessary equipment to ensure the satisfactory completion of the work without damaging the foundation, roadway embankment or subgrade. This may require the transporting and movement of materials over additional distances.

I. Protection of Utilities. Utility lines may become exposed at, above, or below, the foundation or subgrade elevation during machine grading or subgrade undercutting operations. If this occurs, the Contractor will excavate around, above and/or below the utility lines, as directed, to complete the machine grading or subgrade undercutting operations.

m. Foundation Preparation. The Contractor will prepare the earth grade in accordance with Section 205.03.A of the Michigan Department of Transportation 2020 Standard Specifications for Construction as shown on the plans, and as specified herein.

The earth grade will be compacted to 95% of its maximum unit weight, as measured by the AASHTO T-180 method, to a depth of at least 10 inches. If this cannot be achieved, in the opinion of the Engineer, he/she will direct the Contractor to perform Subgrade Undercutting of the type specified or as directed by the Engineer.

n. Subgrade Construction. The Contractor will construct the subgrade by performing earth excavation and placing roadway embankment work in accordance with Sections 205.03.G and 205.03.H of the Michigan Department of Transportation 2020 Standard Specifications for Construction, as shown on the plans, and as specified herein.

The Contractor will shape and prepare the subgrade outside of proposed utility trench areas to the grades and cross-sections, shown on the plans, including sidewalk, driveways, and landscape areas, or as directed by the Engineer, and as specified herein. The subgrade will be prepared to ensure uniform support for the pavement structure. To achieve this, the work will include, but not be limited to:

1. Excavate, remove, haul away, and dispose of any surplus or unsuitable materials.
2. Import and furnish any additional Engineer approved fill materials necessary.
3. Move existing and/or furnished materials longitudinally and transversely as necessary.
4. Cut, place, compact, and trim existing and/or furnished materials to construct the roadway embankment and subgrade to the specified elevations within tolerances.
5. Stockpiling, and moving again, any cut materials which cannot be immediately placed upon excavation due to construction staging.
6. Grade around mailboxes, trees, utilities poles, other utility features, and all other distinguished permanent features. The Contractor will be responsible for any damaged caused to such features.

7. Maintain the work in a finished smooth condition until it is accepted by the Engineer.

If the Contractor's equipment should cause any rutting or other damage in the base, subbase or subgrade, the equipment will be immediately restricted from the grade and the Contractor will restore the area to the satisfaction of the Engineer at the Contractor's expense.

The Contractor will excavate, fill, and grade the subgrade to accommodate all proposed subbases, aggregate bases, pavements, swales and adjacent planting beds, curb and gutter, driveways, sidewalks, bicycle paths, other similar structures, bioswale planting mix, topsoil, and any other features which the subgrade supports.

The Contractor will prepare the subgrade to ensure uniform support for the pavement structure. The finished subgrade will be placed to within 1 inch below and $\frac{3}{4}$ inch above the plan grade. Variations will be corrected with the placement of compacted granular material. The tolerances for the pavement structure strata are not additive.

In areas where the existing grade is to be cut to achieve proposed subgrade elevation (cut sections), rubber tire equipment including scrapers, wheel loaders, and graders may be used by the Contractor but only to within 2 feet above the proposed subgrade elevation.

After the grade has been cut to within 2 feet above the subgrade elevation, the Contractor will install all proposed underground utilities and underdrains within the 1:1 influence of the proposed pavement section.

Following the installation of utilities, the Contractor will perform the remaining cutting using tracked equipment only. The Contractor will only excavate an amount that the Contractor can maintain and protect and keep well drained at all times.

In areas where the existing grade is to be filled to achieve the proposed subgrade elevation (fill-sections), filling will not take place until all proposed underground utilities within the 1:1 influence of the proposed pavement have been installed. However, if the existing grade does not provide the required minimum cover for a portion of any utility, filling for the road subgrade will be performed to provide such minimum cover. This filling will be for the entire width of the roadway (to 1 foot behind the curb) at a length as determined by the Engineer.

The Contractor will place fill materials only on stable earth grade approved by the Engineer.

The Contractor will place fill in 6-inch lifts and compacted to 95% of the maximum unit weight as determined by the AASHTO 180 test.

o. Proof Roll to Establish Subgrade. Immediately following the completion of the

grading and compaction of the subgrade as required above, the Contractor will notify and allow the Engineer to inspect the finished subgrade for soft or uncompacted areas, and for areas of unsuitable and deleterious soils.

The Contractor will proof roll the grade or other surfaces as directed by the Engineer. Equipment for proof rolling will be a pneumatic-tired roller and will have suitable body for ballast loading with such capacity that the gross load may be varied between 25 and 40 tons. The Contractor may use an appropriately loaded single axle or tandem axle dump truck in lieu of the specified roller to achieve the loads specified above. The proof rolling vehicle will be operated at walking speed. The proof roller will make one or more passes to complete coverage of the completed subgrade. Where proof rolling shows the subgrade to be unstable, such areas will be undercut and repaired as determined by the Engineer. Following the completion and approval of all undercuts required based on the proof rolling, the subgrade will be considered established.

The Contractor will not operate rubber-tired equipment on the established subgrade unless specifically authorized in writing by the Engineer.

The Contractor will be responsible for the maintenance of the subgrade. Any damage to the subgrade due to the Contractor's activities or the activities of its subcontractors, will be repaired by the Contractor at the Contractor's expense including any additional undercuts required after the subgrade had been established.

p. Subgrade Manipulation. The Contractor will perform Subgrade Manipulation on the foundation or subgrade in accordance with Section 205.03.F of the Michigan Department of Transportation 2020 Standard Specifications for Construction where indicated on the plans, as specified herein, and as directed by the Engineer.

Where subgrade manipulation is required, the foundation or subgrade will be thoroughly scarified, blended, and mixed to a depth of 12 inches. The work will be accomplished by means of a large diameter disc, motor grader, or other equipment approved by the Engineer. After the foundation or subgrade has been manipulated to the satisfaction of the Engineer and allowed to dry, the soil will be compacted to 95% of its maximum dry density as measured by the AASHTO T-180 method. The time required for drying the soil will not be a basis for an extension of time.

q. Site Preparation. The Contractor will perform Site Preparation for tree plantings in accordance with Section 815.03B of the Michigan Department of Transportation 2020 Standard Specifications for Construction where indicated on the plans, as specified herein, and as directed by the Engineer.

r. Rock Excavation. The Contractor will perform Rock Excavation for boulders ½

cubic yard in volume or less in accordance with Section 205.03.B of the Michigan Department of Transportation 2020 Standard Specifications for Construction where shown on the plans, as specified herein, and as directed by the Engineer.

s. Lowering Structures. Prior to cutting the subgrade, the Contractor will remove structure covers, lower the structures to a point between 8 inches and 12 inches below the proposed subgrade, and cover the structures with a steel plate. Structures shall not be raised prior to placing roadway embankment.

The steel plates for covering structure openings shall conform to the plan detail, be anchored in place, and properly placed to prevent their movement under all traffic, be thick enough to carry all traffic, and prevent the infiltration of debris into the structures.

The Contractor will lower valve boxes to a point between 8 inches and 12 inches below the proposed subgrade. Valve boxes shall not be raised prior to placing roadway embankment.

The void in the grade above the steel plates used for structure lowerings and valve box lowerings will be backfilled, and compacted to 95% of its maximum dry density, with an Engineer approved coarse aggregate.

The Contractor will coordinate the lowering of private utility structures with the corresponding utility company.

t. Structure and Sewer Cleanliness. All sewers and structures, including manholes, gate wells, valve boxes, inlet structures, and curbs will be protected from damage and contamination by debris and construction materials. Structures will be maintained clean of construction debris and properly covered at all times throughout construction. The Contractor will immediately clean any structures and/or sewers that become contaminated with construction debris. The Contractor will be responsible for all direct and indirect damages which are caused by sewers or structures which have been made unclean or have been damaged by the Contractor.

u. Site Furnishings. The Contractor will remove, salvage, and reinstall all site furnishings which conflict with proposed site work. Expected site furnishings include bicycle racks, wayfinding signage, trash cans, bollards, and decorative signage. The contractor will furnish new hardware for the reinstallation.

v. Measurement and Payment. The completed work, as described, will be paid for by planned quantities at the contract unit price for the following contract items (pay items):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
DS_Machine Grading, Modified	Station

Payment for **DS_Machine Grading, Modified** will include all costs for labor, materials, and equipment necessary to complete the work described herein except when separate pay items are provided in the proposal to compensate for the work.

Quantities paid for **DS_Machine Grading, Modified** will be planned quantities by the station, measured along the proposed State Street construction centerline from right-of-way to right-of-way, including temporary grading permits, from POB to POE, which may be adjusted due to changes in the limits of work as issued in writing by the Engineer.

The estimated quantities for excavation and embankment are 1,800 and 50 cubic yards, compacted-in-place (CIP), respectively. These estimated quantities are for informational purposes only. Earthwork associated with utility work is included in their pay items. Estimated quantities for excavation and embankment may be more or less based on field conditions encountered during construction. The Contractor is responsible for reviewing the information in the bid documents to compare to these estimated figures. Claims related to estimated quantities for excavation and embankment will be denied by the Owner.

Granular material backfill required for utility trenches will be paid for as part of the corresponding utility pay items.

The Contractor is advised that due to the phasing of the project and the probable unsuitability of some or all of the excavated material for use as approved fill material, there may be imbalances between the amount of earth cut which is suitable for reuse as fill, and the amount of earth needed to construct the lines and grades shown on the plans, or as directed by the Engineer. The Contractor will make provisions for such imbalances and will include in the bid price for this work the cost of importing/furnishing, placement, and compaction of MDOT Class II granular material, as well as the cost of stockpiling and re-handling of imported and/or on-site Engineer approved materials as necessary to complete the work of constructing the embankment and subgrade to the cross sections shown on the plans.

CITY OF ANN ARBOR
SPECIAL PROVISION
FOR
STORM MANHOLE, 48 IN. DIA., WITH LEACHING BASE (0-8' DEEP)

WT:AJK

1 of 4

2/18/2025

a. Description. This work consists of providing all labor, materials, and equipment required to construct a storm manhole with a leaching base where shown and as detailed on the plans in accordance with the City of Ann Arbor 2025 Public Services Standard Specifications and Section 403 of the Michigan Department of Transportation 2020 Standard Specifications for Construction, as shown on the plans, and as specified herein.

b. Submittal Requirements. The Contractor will submit to the Engineer for review and approval shop drawings in accordance with Section 104.02 of the Michigan Department of Transportation 2020 Standard Specifications for Construction for all materials related to drainage structures.

For each submittal or resubmittal, the Contractor will allow at least 14 calendar days from the date of the submittal to receive the Engineer's acceptance or request for revisions. The Engineer's comments will be incorporated into the submitted plans, calculations and descriptions. The Engineer's acceptance is required before beginning the work. Resubmittals will be reviewed and returned to the General Contractor within 14 calendar days. Required submittal revisions will not be a basis of payment for additional compensation, extra work, or an extension of contract time.

c. Materials. The materials used for this work will conform to Section 403.02 of the Michigan the Michigan Department of Transportation 2020 Standard Specifications for Construction, except as specified herein.

Storm sewer drainage structures will be constructed of precast reinforced concrete sections topped with an eccentric cone or, in situations in which it is not possible to install precast sections, concrete masonry units where approved by Engineer.

Precast reinforced concrete bases, bottom sections, manhole risers, grade adjustment rings, concentric cones, eccentric cones, and flat slab tops will conform to the requirements of ASTM C478. Joints on precast manholes used on all sanitary sewers will meet ASTM C443, rubber O-ring gasket.

All structures will be designed to accommodate HS-20 Live Load requirements as determined by a Professional Engineer licensed by the State of Michigan, regardless of where they are to be installed.

The Contractor will field verify inverts prior to fabricating precast units. No additional payment will be made to the Contractor for precast units that cannot be used due to existing inverts being different than shown on the plans, changes in vertical or horizontal alignment due to conditions found in the field, or similar unforeseen circumstances.

Concrete masonry units will conform to the requirements for concrete masonry units for catch basins and manholes, ASTM C139.

Concrete brick will conform to the requirements for concrete building brick, ASTM C55, Grade N-1.

Plastic coated manhole steps will be injection molded of copolymer, polypropylene, encapsulating a 1/2 inch grade 60 steel reinforcing bar. Plastic-coated manhole steps will meet the performance test described in ASTM C-478, Paragraph II, and will have an impact resistance of 300 ft.-lbs. with only minor deflection and no cracking or breaking. The steps will resist pull out forces of 1,500 lbs.

Backfill will be MDOT class II granular material only and will be compacted to 95% of its maximum unit weight in maximum 10-inch lifts.

Structures will be precast reinforced concrete sections of the type specified in the details shown on the plans.

Leaching base aggregate will be 6A and meet the requirements of section 902 of the Michigan Department of Transportation 2020 Standard Specifications for Construction.

Geotextile separator will meet the requirements of section 910 of the Michigan Department of Transportation 2020 Standard Specifications for Construction.

Geogrid will be triaxle type and suited for use with 6A aggregate.

d. Construction. The Contractor will construct drainage structures in accordance with Section 403.03 of the Michigan Department of Transportation 2020 Standard Specifications for Construction, except as specified herein.

Excavation will be carried to the depth and width required to permit the construction of the required base, including aggregate. The excavation width will be greater than the base. The bottom of the excavation will be trimmed to a uniform horizontal bed and be completely dewatered before any aggregate or concrete is placed therein.

The Contractor will install geogrid and geotextile separator in a layer that spans the extents of the base, install 24 inches of aggregate base in a uniform layer that spans the extents of the base, and top the aggregate base with a second layer of geogrid and geotextile separator. The geogrid and geotextile layers will be flush with the subgrade and aggregate base.

Circular precast manhole sections will be constructed in accordance with the details as shown on the plans. Manhole stack units will be constructed on precast concrete bases or precast concrete bottom sections. Bases or bottom sections will be perforated to permit exfiltration into aggregate base.

Precast cone sections will be constructed in accordance with the details as shown on the plans. These units will be eccentric for all manholes, precast or block. All structures will be topped with a minimum of one, and a maximum of three, 2" tall, brick or precast adjustment courses.

Manholes, inlets, and structures will be constructed within 2-1/2 inches of plumb. Frames and covers will be set in full mortar beds and pointed on the structure interior to a smooth, brushed finish. The covers will be set flush with sidewalk, roadway pavement, or ground surfaces. The Engineer will be notified prior to the final paving to allow inspection of the final casting adjustments for all utility structures.

Sewer pipes will extend into structures a minimum of 1/2 inch and a maximum of 3 inches.

The excavation will be kept in a dry condition.

All necessary adjustments for new structures will be included in the cost of the structure.

Manhole steps, installed where required, will be spaced 16 inches.

The Contractor will backfill drainage structures only after the exterior mortar coating has cured and approved by the Engineer.

The Contractor will ensure that the completed drainage structure is clean and free of any debris from construction activities.

The Contractor will furnish and install structure covers in accordance with the details on the plans the City of Ann Arbor 2025 Public Services Standard Specifications.

The Contractor will install external seals on all manhole chimneys.

Compaction of 6A Aggregate

The Contractor will compact 6A aggregate layers to a minimum of 95% of the maximum density. If the aggregate cannot be accurately tested with a nuclear gauge, then the Engineer will develop a procedural specification at the time of construction utilizing a required number of passes based on the Contractor's compaction equipment and visual movement of the aggregate.

e. Measurement and Payment. The completed work, as described, will be paid at the contract unit price for the following contract items (pay items):

<u>Pay Item</u>	<u>Pay Unit</u>
DS_Storm Manhole, 48 In. Dia., with Leaching Base (0-8' deep).....	Each

Payment for **DS_Storm Manhole, 48 In. Dia., with Leaching Base (0-8' deep)** will be paid by each complete unit installed and will include all costs for labor, materials, and equipment required for all necessary excavation, disposing of surplus excavated materials, frame and cover, backfilling, adjusting frame and cover to finished elevation, and constructing the complete structure with sump and leaching base, regardless of depth, pipe connections, and structure cleaning.

Measurement and payment for internal and external chimney seals will be paid for separately.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
SANITARY SEWER SERVICE LEAD REMOVAL AND INSTALLATION

WT:AJK

1 of 3

02/18/2025

a. Description. This work consists of providing all labor, materials, and equipment required to remove and install sanitary sewer service leads where authorized by the Engineer to accommodate utility construction and maintain service in accordance with City of Ann Arbor 2025 Public Services Standard Specifications and the Michigan Department of Transportation 2020 Standard Specifications for Construction, except as modified herein, or as directed by the Engineer.

b. Materials.

Pipe and fittings materials be SDR 26 polyvinyl chloride (PVC) with integral wall bell and spigot which conforms to ASTM D3034 (Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings).

Lubricants used in making up joints will be supplied by the pipe manufacturer, and the joints will be coupled in accordance with the manufacturer's requirements.

Joints for PVC pipe will be elastomeric gasketed push-on joints conforming to the requirements of ASTM D3212 (Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals). Gaskets will conform to ASTM F477 (Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe).

Pipe bedding and backfill will be class II granular which meets the requirements of section 902 of the Michigan Department of Transportation 2020 Standard Specifications for Construction.

The following information shall be clearly marked on each length of pipe:

1. The pipe designation and class (e.g., C 76, Class IV). For PVC pipe, this shall include the PVC cell classification.
2. The name or trademark of the manufacturer.
3. Identification of the manufacturing plant.
4. The date of manufacture.
5. Testing lot number or testing lab stamp.
6. Beveled pipe shall be marked with the amount of bevel, and the point of maximum length shall be marked on the beveled end.

All pipe furnished will be accompanied by the manufacturer's certificate of test showing conformity with the relevant standard specifications. Each certificate shall identify a specific lot number, quantity of pipe, and show actual test results for the lot furnished. These certificates shall be submitted to the Engineer and must be pre-approved prior to the start of construction.

c. Construction.

The Contractor will perform work in accordance with City of Ann Arbor 2025 Public Services Standard Specifications and sections 203, 402, and 825 of the Michigan Department of Transportation 2020 Standard Specifications for Construction.

The Contractor will maintain sanitary sewer services at all times throughout construction utilizing bypass pumping or other Engineer approved means. It may be necessary for the Contractor to maintain pumping during outside of working hours.

The Contractor will take all measures necessary to ensure that no site debris enter the ends of the pipe remaining in place and the new pipe installed.

The Contractor will work with the Engineer to identify existing sanitary service leads that prohibit the installation of proposed work. The Contractor will only remove sanitary service leads approved by the Engineer for removal.

The Contractor will protect existing pipe, connections, and fittings to remain in place and will remove sanitary service leads in a manner to no disturb adjacent upstream and downstream pipe.

The Contractor will make clean cuts and trim and deburr the pipe ends to remain in place so that the edge is smooth and 90 degrees to the longitudinal axis of the pipe.

The Contractor will clean the pipe ends before installing new pipe.

The Contractor will maintain the trench in a clean and dry condition.

The Contractor will install sanitary service leads in accordance with the City of Ann Arbor 2025 Public Services Standard Specifications.

d. Measurement and Payment. The completed work, as described, will be paid for at contract unit prices for the following contract items (pay items):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
DS_Sanitary Service Lead, Rem, 4 to 8 inch	Foot
DS_4 In., SDR 26 PVC Sanitary Service Lead, SD-TD-2	Foot

Payment for **DS_Sanitary Service Lead, Rem, 4 to 8 inch** will be measured by the foot for pipe removed and will include all costs for labor, materials, and equipment required to complete all the work described herein, including cutting, removing, hauling, and disposing of existing materials, protecting existing pipe remaining in place, and maintaining existing sanitary service utilizing Engineer approved means.

Payment for **DS_4 In., SDR 26 PVC Sanitary Service Lead, SD-TD-2** will be measured by the foot for pipe installed and will include all costs for labor, materials, and equipment required to complete all the work described herein, including excavation, furnish and install pipe, fittings, and risers, any sheeting, shoring, and bracing required, dewatering, furnish and install water-tight plugs, protection of all existing utilities and service connections, furnish and install pipe bedding and backfill, cleaning, video inspection, and testing.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
REMOVE ABANDONED GAS MAIN

WT:AJK

1 of 2

2/25/2025

a. Description. This work consists of providing all labor, materials, and equipment required to remove existing abandoned gas main to accommodate construction where existing abandoned gas mains conflict with proposed utilities outside of Machine Grading limits where authorized by the Engineer in accordance with City of Ann Arbor 2025 Public Services Standard Specifications and all requirements dictated by the utility owner, except as modified herein, or as directed by the Engineer.

b. Materials.

Plugs will be of the type and material approved by the utility owner.

c. Construction.

The Contractor will perform work in accordance with City of Ann Arbor 2025 Public Services Standard Specifications and all requirements dictated by the utility owner.

The Contractor will work with the Engineer to identify locations at which existing abandoned gas main pipe conflicts with proposed utility installations.

The Engineer will not authorize the Contractor to cut gas main pipe in service.

The Contractor will be solely responsible to verify that gas main pipes identified for removal are not in service.

The Contractor will coordinate with the utility owner to confirm gas main pipes are abandoned and the utility owner's cutting and removal procedures and requirements prior to commencing removal work.

The Contractor will cleanly cut, haul away, and dispose of existing abandoned gas main pipe within the limits of construction at the direction of the Engineer.

The Contractor will cut and plug the remaining portions of the existing abandoned gas main pipe in accordance with the utility owner requirements.

d. Measurement and Payment. The completed work, as described, will be paid for at contract unit prices for the following contract items (pay items):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
--	------------------------

DS_Remove Abandoned Gas Main	Foot
------------------------------------	------

Payment for **DS_Remove Abandoned Gas Main** will be measured by the foot for pipe removed, regardless of diameter size and will include all costs for labor, materials, and equipment required to complete all the work described herein, including utility coordination, cutting, removing, hauling, and disposing of existing materials, protecting existing pipe remaining in place, and plugging the pipe remaining in place.

Gas main pipe diameters expected to be encountered vary in size up to 4 inches. The unit price for this work will also include diameters larger than 4 inches.

Pre-proposal meeting 2-12-25

- 1) ~~1)~~ Mark McCulloch Wade Trim m.mcculloch@wadetrim.com
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MATERIALS TESTING CONSULTANTS

GEOTECHNICAL DATA REPORT

STATE STREET AND NORTH UNIVERSITY WATER MAIN AND STREETScape PROJECT
ANN ARBOR, MICHIGAN

Prepared For:

CITY OF ANN ARBOR
Ann Arbor, Michigan

Prepared By:

MATERIALS TESTING CONSULTANTS, INC.

October 2021
MTC Project No. 211279



October 22, 2021
Project No. 211279

City of Ann Arbor – Engineering
c/o Wade Trim
21251 Northline Road
Taylor, MI 48180

Attention: Vaughn Martin, P.E.

Reference: Report of Geotechnical Investigation
State Street and North University Water Main and Streetscape Project
Ann Arbor, Michigan

Dear Mr. Martin:

We have completed a geotechnical investigation for the above-referenced project. The purpose of this investigation has been to identify the general subsurface soil conditions and complete infiltration testing in the vicinity of the proposed construction. This work has been performed as described in our proposal dated July 27, 2021, and in accordance with our active City of Ann Arbor contract for 2021 Geotechnical and Environmental Services.

Presented herein are descriptions of our understanding of the geotechnical investigation and encountered conditions. The Appendix contains the report limitations and data collected during this investigation.

AVAILABLE INFORMATION

We have been provided the following documents and information for use in this investigation:

- An initial boring location map received on July 19, 2021 from Mr. Vaughn Martin, P.E. of Wade Trim.
- Telephone and email conversations with Mr. Vaughn Martin, P.E. and Ms. Carmelle Tremblay, P.E. of Wade Trim regarding the project details and scope of work.
- Email correspondence with Mr. Alex Russeau of SmithGroup regarding infiltration test depths.

The areas of investigation are shown on Figure Nos. 1 to 4. The investigation was primarily located on State Street between South University and Washington Street and on North University between State Street and Fletcher Street. We understand the project will consist of a new water main, pavement rehabilitation and streetscape improvements and is a joint venture between the City of Ann Arbor, the Downtown Development Authority and the University of Michigan.



INVESTIGATION METHODOLOGY

Conventional soil test borings and sampling and hand auger borings, along with field engineering reconnaissance were used to investigate the subsurface conditions. Boring locations are shown on Figure Nos. 1 to 4. Investigation procedures, soil classification information and boring logs are provided in the Appendix.

Number of Rig Borings	9
Rig Boring Depth Range, ft.	10.0
Number of Hand Auger Borings	10
HA Boring Depth Range, ft.	3.2 to 5.5

Borings were drilled and other sampling was conducted solely to obtain indications of subsurface conditions as part of a geotechnical exploration program. No services were performed to evaluate subsurface environmental conditions.

Infiltration tests were performed at Borings B-1, B-3 and B-4 at depths ranging from 7.5 to 7.8 ft below existing grade (els 866.6 to 869.0 ft). Infiltration test locations and depths were chosen in consultation with Wade Trim and SmithGroup. Infiltration tests were performed using the double ring method outlined in the Washtenaw County Water Resource Commissioner's Procedures and Design Criteria for Storm Water Management.

Laboratory – Soil

Soil samples were reviewed by one of our engineers and technically classified according to the methods of ASTM D2488 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)". A summary table of the soil conditions and the estimated resilient modulus for each soil type is contained in the Appendix.

The estimated values for resilient modulus, M_r , have been provided based on the visual classification of the soil and Table 12-2 in the Michigan DOT User Guide for Mechanistic Empirical Pavement Design, Interim Edition dated March 2015. Other data including results from FWD testing, local knowledge, or from past ME pavement performance on similar subgrade materials may also be of use in estimating resilient modulus if they are available. Typically, recommendations based on visual classification are given as a range of values for various assumptions regarding compaction, moisture content and roadway type. Generally, more conservative values of resilient modulus should be used on high traffic roads with a higher cost to early failure, in areas of high soil moisture/high water table and in areas of variable soil, utility trenches, etc. Conversely, less conservative (higher range) values are typically used on lower traffic roads with drier and more uniform soils.



INVESTIGATION RESULTS

Listed below are the encountered subsurface conditions within the area of investigation. The boring logs located in the Appendix should be reviewed for detailed soil descriptions. Some variation between boring locations is to be expected.

Pavement

Borings B-1, B-2, B-5, B-7 to B-12, B-14 and B-16 generally encountered 6 1/2 to 18 1/2 inches of HMA and 3 to 4 inches of sand base or 8 to 13 inches of natural aggregate base, with the exception of Borings B-2, B-7 and B-10 which encountered no base material, Boring B-14 which encountered 15 inches of crushed limestone aggregate base and Boring B-11 which encountered 3 3/4 inches of HMA millings or deteriorated HMA and 11 inches of natural aggregate base. The natural aggregate base in Borings B-9 and B-16 contained HMA millings.

Several borings encountered brick and/or concrete within the pavement section, as follows:

- Boring B-3: 3 1/2" HMA, 5 1/2" Red Brick
- Boring B-4: 4 1/2" HMA, 8 1/2" Red Brick, 5" Concrete
- Boring B-5A: 4" HMA, 3 3/4" Red Brick, 4" Sand Base with Gravel, 3" Weathered Concrete, 11" Natural Aggregate Base
- Boring B-13: 4" HMA, 4 1/2" Concrete, 6" Crushed Limestone Aggregate Base
- Boring B-15: 4" HMA, 3 1/4" Red Brick, 2" Sand Base, 2 1/2" Concrete, 8" Crushed Limestone Aggregate Base

Borings B-6 to B-6 were drilled in the area of the sidewalk during replacement of the concrete. The borings were drilled prior to concrete placement, and 2 inches of sand base was encountered. After the borings were completed, MTC observed placement of 5 1/2 inches of concrete.

Subgrade Soil

Beneath the pavement section, the borings generally encountered fill, consisting of loose to medium dense brown clayey sand (SC) to depths ranging from 2.2 to 5.5 ft (els 869.7 to 877.0 ft), with the exception of Borings B-8 and B-11 where no fill was encountered. Possible fill, consisting of brown poorly graded sand (SP) was encountered in Boring B-6 at depths ranging from 3.0 to 5.5 ft (els 871.3 to 873.8 ft).

Beneath the fill, the borings generally encountered granular subgrade soil with varying amounts of silty and clayey fines to the explored depths of 3.0 to 10.0 ft (els 864.4 to 875.7 ft). The encountered native granular soil generally exhibited a loose to medium dense relative density based on recorded SPT N-values and Dynamic Cone Penetrometer (ASTM STP 399) readings. Borings B-4 and B-16 encountered very loose poorly graded sand (SP) at a depth 7.5 ft (els 869.0 to 872.4 ft).



Borings B-3, B-4, B-10 and B-12 encountered poor recovery due to possible coarse gravel or cobble at depths of up to 6.0 ft (els 869.2 to 873.1 ft). Hand auger refusal due to possible coarse gravel or cobble was noted in Borings B-5A, B-6B and B-13 at depths ranging from 3.2 to 4.5 ft (els 872.9 ft).

Groundwater was not encountered during the investigation. Groundwater levels may fluctuate due to seasonal variations such as precipitation, snowmelt, nearby river or lake levels and other factors that may not be evident at the time of measurement. Groundwater levels may be different at the time of construction.

This section has provided a generalized description of the encountered subsurface soil conditions. The boring logs located in the Appendix should be reviewed for detailed soil descriptions. Some variation between boring locations may be expected.

Infiltration Test Results

Two concentric rings were used to perform the tests, with a 6-inch outer ring diameter and 4-inch inner ring diameter. The purpose of the outer ring is to prevent divergent flow of water from the inner ring while water level in the inner ring is monitored to calculate a one-dimensional infiltration rate. For all tests, readings were taken at 10-minute intervals until stabilized infiltration rates were achieved. The Washtenaw County Water Resource Commissioner's Procedures and Design Criteria for Storm Water Management recommends that the Design Infiltration Rate be taken as $\frac{1}{2}$ the Stabilized Infiltration Rate. The individual infiltration test reports are attached.

A summary of the stabilized infiltration rates, average rate, and design rate (safety factor of 2) for each Test Pit are listed in the following table:

Boring	Test Elevation (ft)	Soil Type at Test Elevation	Stabilized Infiltration Rate (in/hr)	Design Infiltration Rate (in/hr)
B-1	866.6	Brown Poorly Graded Sand (SP)	49 1/2	10*
B-3	867.7	Brown Poorly Graded Sand with Clay (SP-SC)	27	10*
B-4	869.0	Brown Poorly Graded Sand (SP)	10 1/2	5 1/4

* WCWRC Procedures and Design Criteria for Stormwater Management specify a maximum design infiltration rate of 10 in/hr.



CLOSURE

In this report, descriptions of the geotechnical investigation and encountered conditions have been presented. The limitations of this study are described in the Appendix.

The samples may not fully indicate the nature and extent of the variations that actually exist between sampling locations. For that reason, among others, we strongly recommend that a qualified geotechnical firm be retained to observe earthwork construction. If variations or other latent conditions become evident during construction, we remain available to perform additional exploration or provide recommendations as appropriate.

We appreciate the opportunity to provide this service to you on this project. Should you have any questions or require further assistance, please contact our office.

Sincerely,

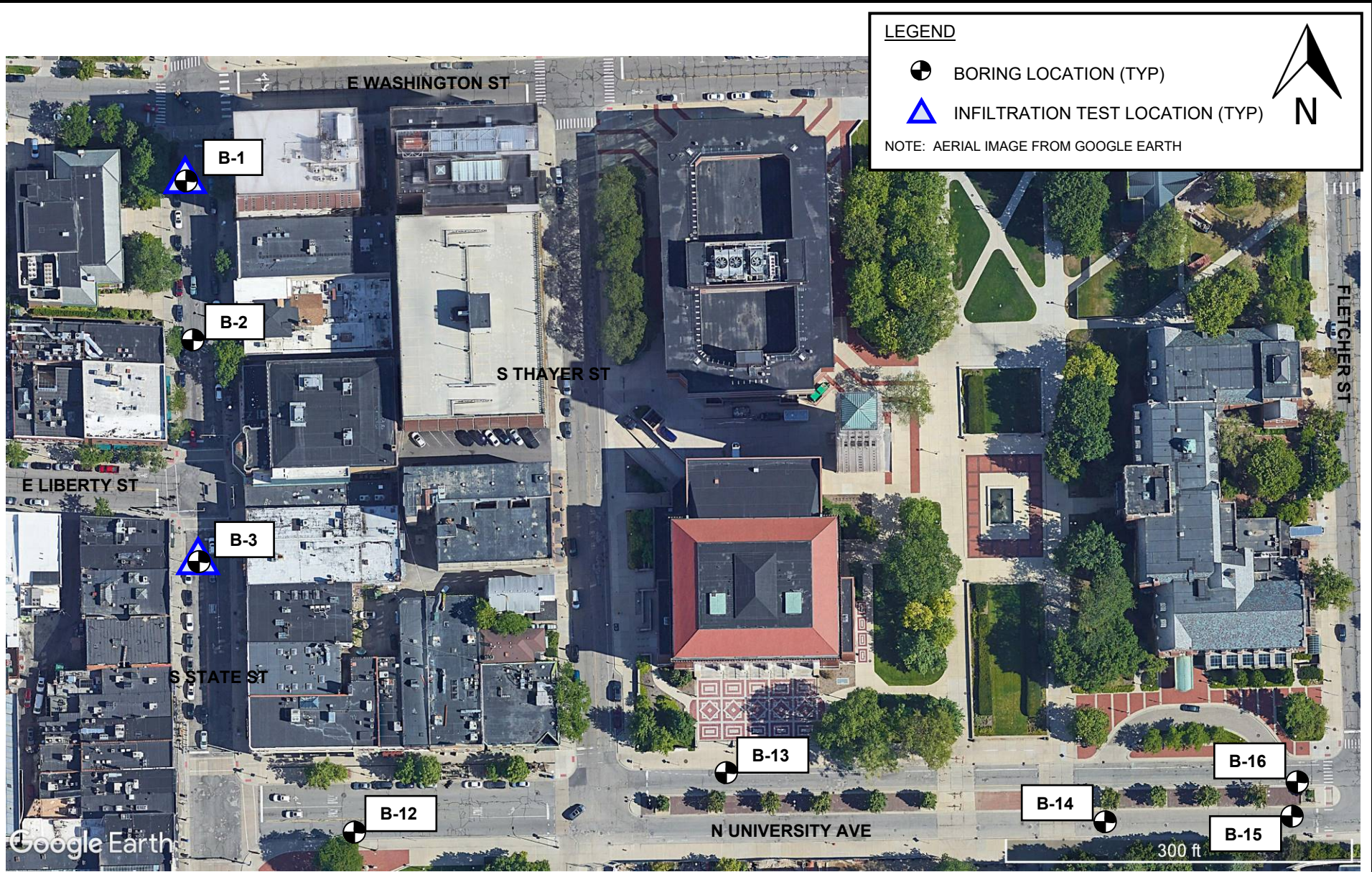
MATERIALS TESTING CONSULTANTS, INC.

Ryan D. Starcher, E.I.T.
Project Engineer

Robert J. Warren, P.E.
Project Manager



Attachments: Figure Nos. 1 to 4 - Boring Location Plan
Table 1 – Summary of Investigation Results
Appendix
- Limitations
- Test Drilling and Sampling Procedures
- Boring Log Terminology and Classification Outline
- Boring Logs
- Infiltration Test Results



TITLE: BORING LOCATION PLAN

PROJECT: CITY OF ANN ARBOR STATE STREET AND NORTH UNIVERSITY

SCALE: VISUAL

DATE: 10/22/2021

PROJECT NO.: 211279

FIG. NO.: 1

DR. BY: KLV

REV. BY: RW

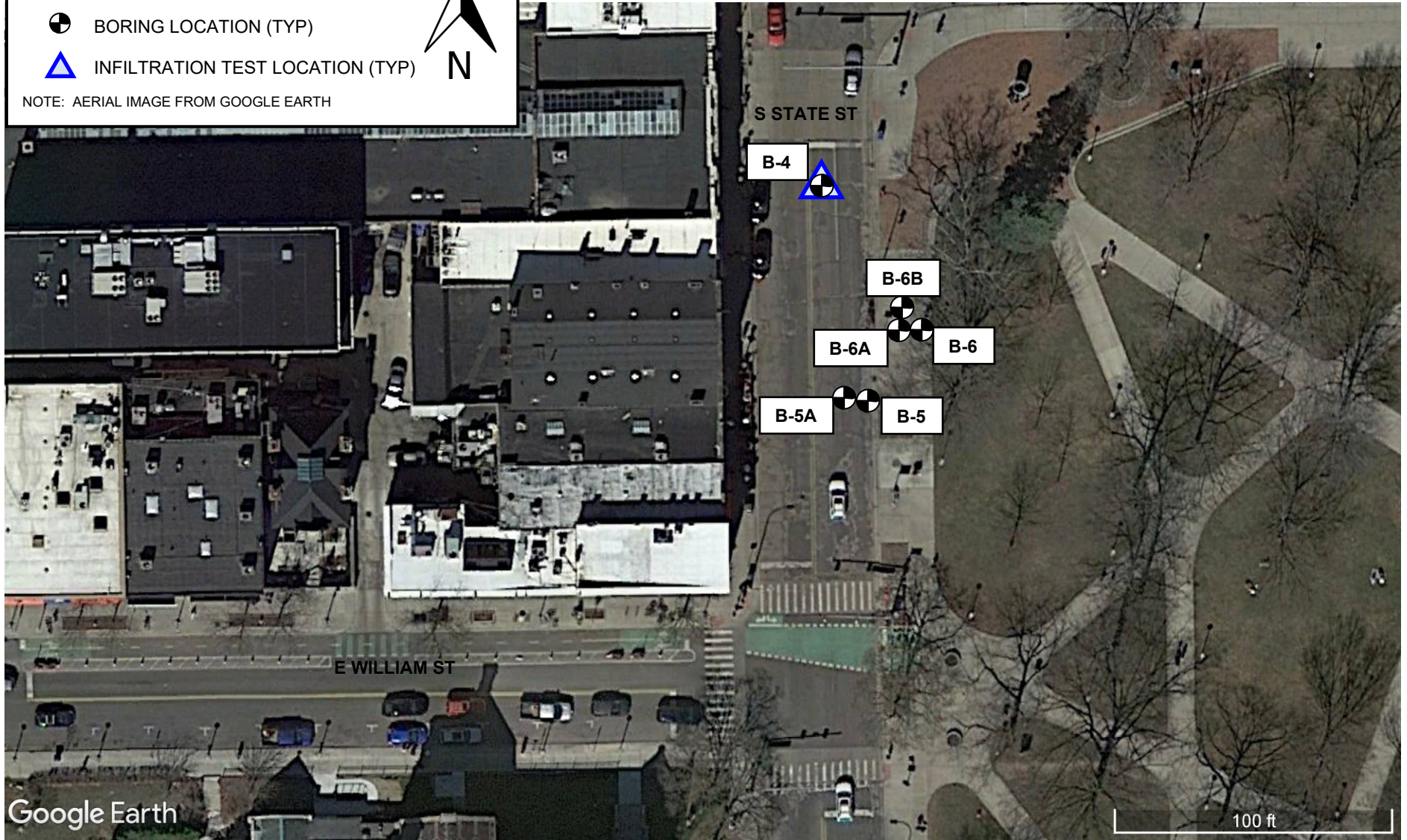


LEGEND

 BORING LOCATION (TYP)

 INFILTRATION TEST LOCATION (TYP)

NOTE: AERIAL IMAGE FROM GOOGLE EARTH



TITLE: BORING LOCATION PLAN

PROJECT: CITY OF ANN ARBOR STATE STREET AND NORTH UNIVERSITY

SCALE: VISUAL

DATE: 10/22/2021

PROJECT NO.: 211279

FIG. NO.: 2

DR. BY: KLV

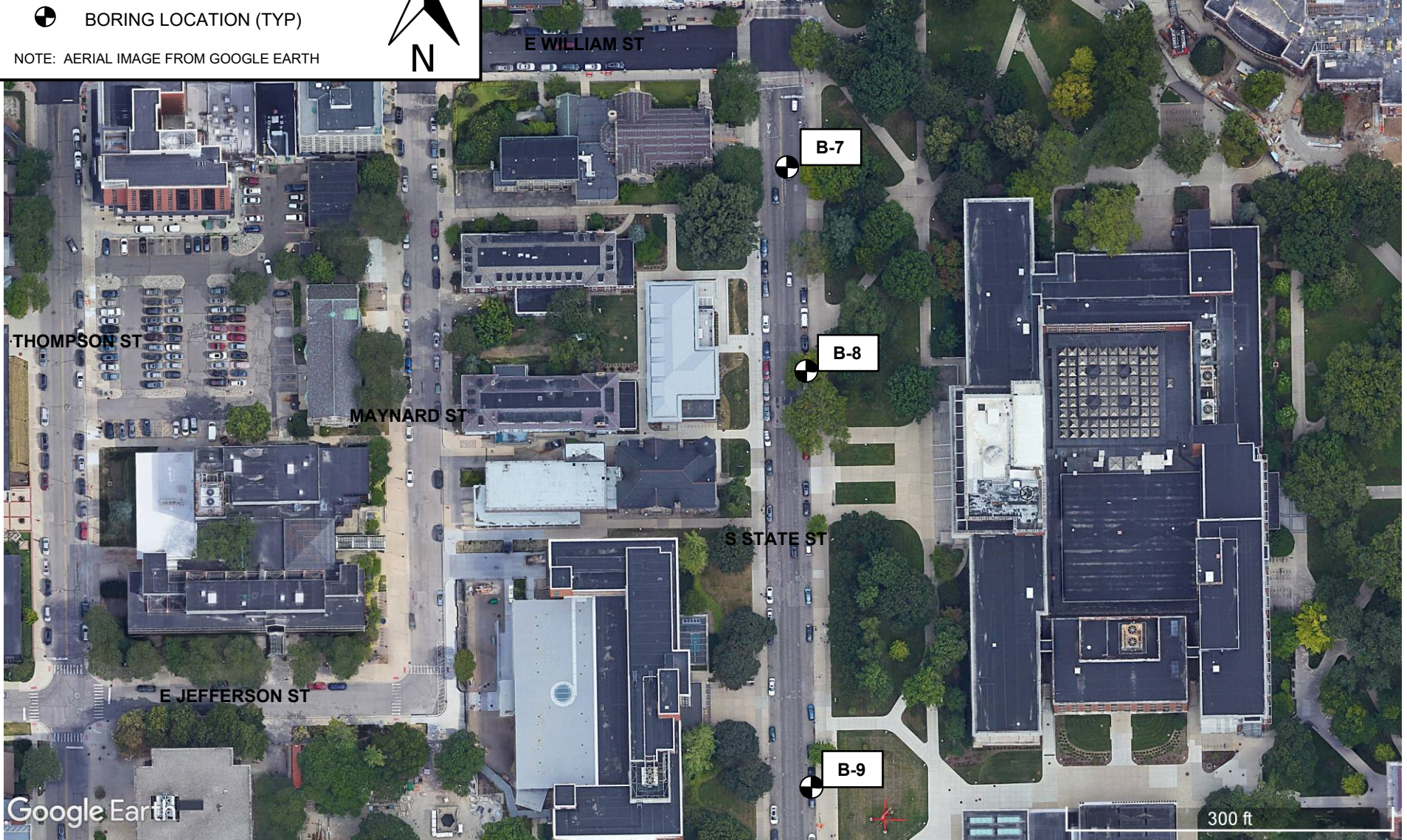
REV. BY: RW



LEGEND

 BORING LOCATION (TYP)

NOTE: AERIAL IMAGE FROM GOOGLE EARTH



TITLE: BORING LOCATION PLAN

PROJECT: CITY OF ANN ARBOR STATE STREET AND NORTH UNIVERSITY

SCALE: VISUAL

DATE: 10/22/2021

PROJECT NO.: 211279


FIG. NO.: 3

DR. BY: KLV

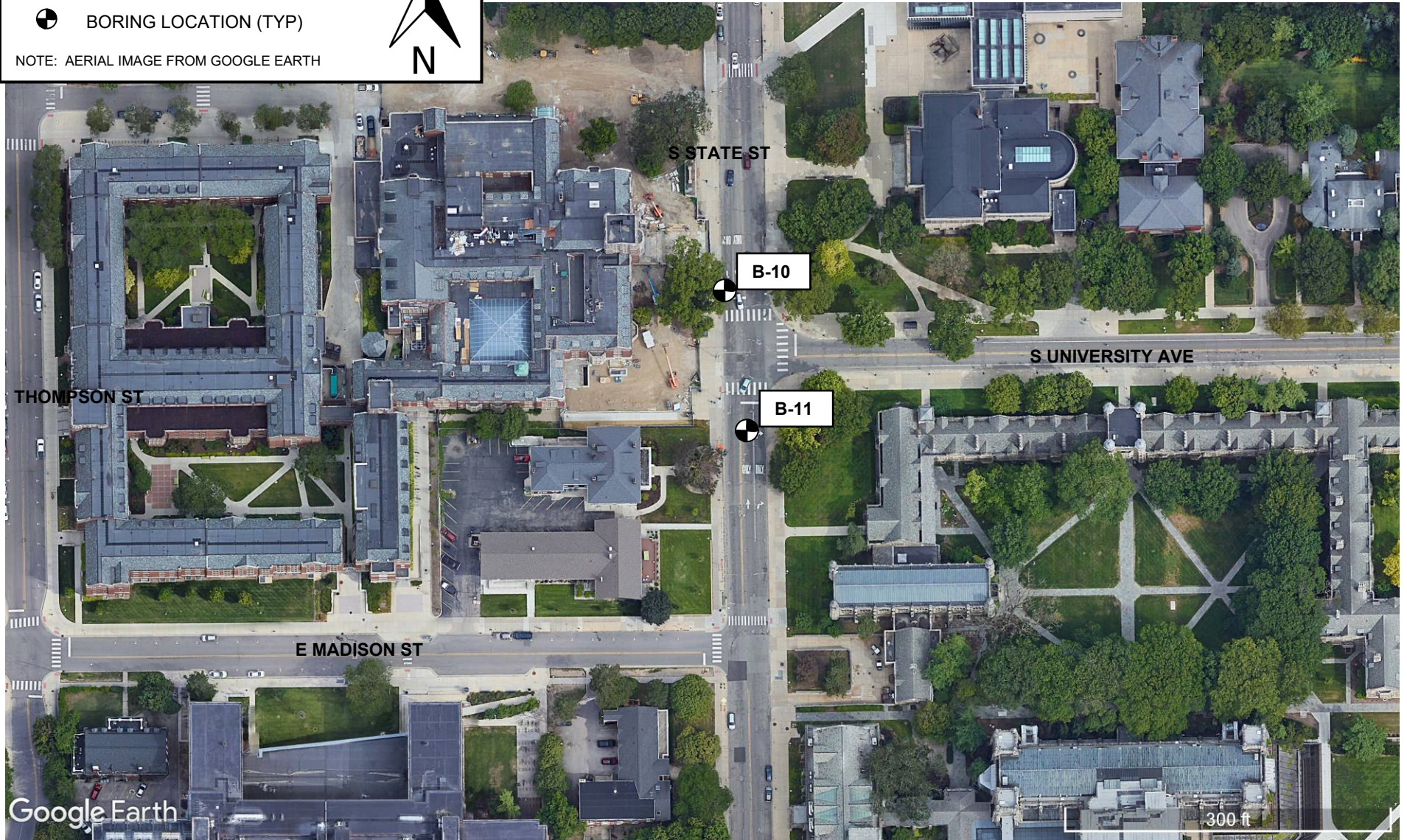
REV. BY: RW



LEGEND

 BORING LOCATION (TYP)

NOTE: AERIAL IMAGE FROM GOOGLE EARTH



TITLE: BORING LOCATION PLAN

PROJECT: CITY OF ANN ARBOR STATE STREET AND NORTH UNIVERSITY

SCALE: VISUAL

DATE: 10/22/2021

PROJECT NO.: 211279

FIG. NO.: 4

DR. BY: KLV

REV. BY: RW

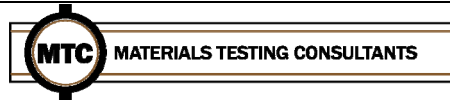




TABLE 1 - SUMMARY OF INVESTIGATION RESULTS

Street Name	Limits	Borings	Asphalt Thickness (inches)	Base Thickness and Description	Subgrade Soils	Estimated Resilient Modulus, psi
State Street	E. Washington St. to N. University Avenue	B-1 to B-3	3 1/2 to 9	B-1: 3" Sand Base B-2: None B-3: 5 1/2" Red Brick	B-1: Poorly graded sand with clay (SP-SC) to 3.0 ft, Poorly graded sand (SP) to 10.0 ft B-2: Clayey sand (SC) to 2.3 ft, Poorly graded sand (SP) to 10.0 ft B-3: Clayey sand (SC) to 5.5 ft, Poorly graded sand with clay (SP-SC) to 10.0 ft	SC: 3,700 - 5,100 SP: 5,500 - 7,500
State Street	N. University Avenue to E Williams St.	B-4 to B-6B	4 to 11, except for B-6 to B-6B where 5 1/2" concrete was observed	B-4: 8 1/2" Red Brick, 5" Concrete B-5: 13" Natural Aggregate Base B-5A: 3 3/4" Red Brick, 4" Sand with Gravel, 3" Weathered Concrete, 11" Natural Aggregate Base B-6, B-6A, B-6B: 2" Sand Base	B-4, B-5: Clayey sand (SC) to 2.7 to 5.5 ft, Poorly graded sand (SP) to 5.0 to 10.0 ft B-5A, B-6A, B-6B: Clayey sand (SC) with gravel to 3.0 to 3.5 ft B-6: Clayey sand (SC) with gravel to 3.0 ft, Poorly graded sand (SP) to 5.5 ft	SC: 3,700 - 5,100 SP: 5,500 - 7,500
State Street	E. Williams St. to E. Madison St.	B-7 to B-11	8 to 18 1/4	B-7, B-10: None B-8: 13" Natural Aggregate Base B-9: 11" Natural Aggregate Base with HMA Millings B-11: 3 3/4" HMA Millings or Deteriorated HMA, 11" Natural Aggregate Base	B-7, B-9, B-10: Clayey sand (SC) to 2.2 to 4.7 ft, Poorly graded sand (SP) to 10.0 ft B-8: Poorly graded sand with silt (SP-SM) and gravel to 5.0 ft B-11: Poorly graded sand with clay (SP-SC) and gravel to 5.0 ft	SC: 3,700 - 5,100 SP: 5,500 - 7,500 SP-SM: 5,900 - 8,100
North University Avenue	State St. to Fletcher St.	B-12 to B-16	4 to 8 1/2	B-12: 4" Sand Base B-13: 4 1/2" Concrete, 6" Crushed Limestone Aggregate Base B-14: 15" Crushed Limestone Aggregate Base B-15: 3 1/4" Brick, 2" Sand Base, 2 1/2" Concrete, 8" Crushed Limestone Aggregate Base B-16: 8" Natural Aggregate Base with HMA millings	B-12, B-14, B-15, B-16: Clayey sand (SC) to 2.9 to 4.6 ft, Poorly graded sand (SP) to 5.0 to 10.0 ft B-13: Poorly graded sand with clay (SP-SC) to 2.8 ft, Poorly graded sand (SP) to 4.5 ft	SC: 3,700 - 5,100 SP: 5,500 - 7,500



APPENDIX

- Limitations
- Test Drilling and Sampling Procedures
- Boring Log Terminology and Classification Outline
- Boring Logs
- Infiltration Test Results



LIMITATIONS

Soil Variations

The recommendations in this report are based upon the data obtained from the soil borings. This report does not reflect variations which may occur between these borings, and which would not become evident until construction. If variations then become evident, it would be necessary for a re-evaluation of recommendations of this report, after performing on-site observations.

Warranties

We have prepared this report in accordance with generally accepted soil and foundation engineering practices. We make no other warranties, either expressed or implied, as to the professional advice provided under the terms of our agreement and included in this report. This report is prepared exclusively for our client and may not be relied upon by other parties without written consent from our office.

Boring Logs

In the process of obtaining and testing samples and preparing this report, we follow reasonable and accepted practice in the field of soil engineering. Field logs maintained during drilling describe field occurrences, sampling locations, and other information. The samples obtained in the field are subjected to additional testing in the laboratory and differences may exist between the field logs and the final logs. The engineer reviews the field logs and laboratory test data, and then prepares the final boring logs. Our recommendations are based on the contents of the final logs.

Review of Design Plans and Specifications

In the event that any changes in the design of the building or the location, however slight, are planned, our recommendations shall not be considered valid unless modified or approved in writing by our office. We recommend that we be provided the opportunity to review the final design and specifications in order to determine whether changes in the original concept may have affected the validity of our recommendations, and whether our recommendations have, in fact, been implemented in the design and specifications.



TEST DRILLING AND SAMPLING PROCEDURES

Test Drilling Methods:

- Hollow stem auger, ASTM D6151
- Mud rotary, ASTM D5783
- Casing advancer, ASTM D5872
- Rock coring, ASTM D2113
- Core/Hand Auger

Note: Cone penetration test data can be used to interpret subsurface stratigraphy and can provide data on engineering properties of soils. The ASTM procedure does not include a procedure for determining soil classification from CPT testing. Soil classifications shown on CPT logs are based on published procedures and are not based on physical ASTM soil classification tests.

Sampling Methods:

- SPT, ASTM D1586, Auto hammer (140 lb., 30" drop, 2" OD split spoon sampler)
- Thin-walled tube sampler (Shelby), ASTM D1587

Note: The number of hammer blows required to drive the SPT sampler 12 inches, after seating 6 inches, is termed the soil N-value and provides an indication of the soil's relative density and strength parameters at the sample location. SPT blow counts in 6 inch increments are recorded on the boring logs.

Drill Rig:

- CME 55 LC (ATV)
- CME 750 Rubber tired (ATV)
- CME 45 Truck
- Geoprobe Direct Push
- Geoprobe Rotary Sonic

Boreholes Backfilled With:

- Excavated soil
- Cement bentonite grout
- Piezometer or Monitoring Well (see notes on logs)
- Concrete or asphalt patch where appropriate

Sample Handling and Disposition:

- Samples labeled, placed in jars, returned to MTC Laboratory
- Discard after 60 days



BORING LOG TERMINOLOGY AND ASTM D 2488 CLASSIFICATION OUTLINE

TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE-GRAINED SOILS (major portions retained on No. 200 sieve): includes (1) clean gravel and sands and (2) silty or clayey gravels and sands. Condition is rated according to relative density as determined by laboratory tests or standard penetration resistance tests.

Descriptive Terms	Relative Density	SPT Blow Count
Very loose	0 to 15 %	< 5
Loose	15 to 35 %	5 to 10
Medium dense	35 to 65 %	10 to 30
Dense	65 to 85 %	30 to 50
Very dense	85 to 100 %	> 50

Per ASTM D2487, the following conditions must be met based on laboratory testing to justify the label 'well graded' in a soil description.

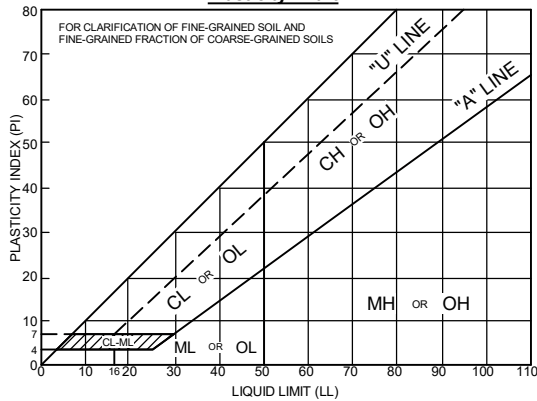
Gravel: $C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3

Sand: $C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3

FINE-GRAINED SOILS (major portions passing on No. 200 sieve): includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings, SPT blow count, or unconfined compression tests.

Descriptive Terms	Unconfined Compressive Strength TSF	SPT Blow Count
Very soft	< 0.25	< 2
Soft	0.25 to 0.5	2 to 4
Medium stiff	0.5 to 1.0	4 to 8
Stiff	1.0 to 2.0	8 to 15
Very stiff	2.0 to 4.0	15 to 30
Hard	> 4.0	> 30

Plasticity Chart



MAJOR DIVISIONS				TYPICAL NAMES
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LESS THAN 15% FINES	GW	WELL-GRADED GRAVELS WITH OR WITHOUT SAND
		GRAVELS WITH 15% OR MORE FINES	GP	POORLY-GRADED GRAVELS WITH OR WITHOUT SAND
			GM	SILTY GRAVELS WITH OR WITHOUT SAND
		GC	CLAYEY GRAVELS WITH OR WITHOUT SAND	
	SANDS MORE THAN HALF COARSE FRACTION IS FINER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 15% FINES	SW	WELL-GRADED SANDS WITH OR WITHOUT GRAVEL
			SP	POORLY-GRADED SANDS WITH OR WITHOUT GRAVEL
		SANDS WITH 15% OR MORE FINES	SP-SM	POORLY-GRADED SANDS WITH SILT WITH OR WITHOUT GRAVEL
			SM	SILTY SANDS WITH OR WITHOUT GRAVEL
		SC	CLAYEY SANDS WITH OR WITHOUT GRAVEL	
		FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS	ML
CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL			
OL	ORGANIC SILTS OR CLAYS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL			
SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%	MH		INORGANIC SILTS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL	
	CH		INORGANIC CLAYS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL	
	OH		ORGANIC SILTS OR CLAYS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL	
HIGHLY ORGANIC SOILS		PT/OL	PEAT AND OTHER HIGHLY ORGANIC SOILS	

GENERAL NOTES

- Classifications are based on the United Soil Classification System and include consistency, moisture, and color. Field descriptions have been modified to reflect results of laboratory tests where deemed appropriate.
- "Grades with" or "Grades without" may be used to describe soil when characteristics vary within a stratum.
- Preserved soil samples will be discarded after 60 days unless alternate arrangements have been made.

GROUNDWATER OBSERVATIONS:

During - indicates water level encountered during the boring
End - indicates water level immediately after drilling
Date and Depth - Measurements at indicated date

SAMPLE TYPES AND NUMBERING

S	SPT, split barrel sample, ASTM D1586
U	Shelby tube sample, ASTM D1587
R	Rock core run
*S	Other than 2" split barrel sample
L	SPT with liner, ASTM D1586
A	Auger cuttings
G	Geoprobe liner

MINOR COMPONENT QUANTIFYING TERMS

Less than 5%	TRACE
5 to 10%	FEW
15 to 25%	LITTLE
30 to 40%	SOME
50 to 100%	MOSTLY

GRAIN SIZE

BOULDER	>12"
COBBLE	12" to 3"
COARSE GRAVEL	3" to 0.75"
FINE GRAVEL	0.75" to No. 4
COARSE SAND	No. 4 to No. 10
MEDIUM SAND	No. 10 to No. 40
FINE SAND	No. 40 to No. 200



LOG OF BORING

Project No.: 211279

Boring No.: B-1

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: CME 45

Crew Chief: ZM **Field Eng.:** JS **Rev. By:** RW

Coordinates: N=284915.3 E=13292708.7 (MI South 1ft)

Elevation: 874.4 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Date Begin: 08/26/2021

Date End: 08/26/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch. Cave in at 6.5 ft.

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
873.9	0.5					9" HMA				Fill 0' to 3.0'
873.4	1.0						0.8			
872.9	1.5	S-1	1.5	3-5-7 N=12	SP-SC	3" Sand Base				
872.4	2.0					Brown poorly graded SAND with clay; mostly coarse to fine sand, little clayey fines, few coarse to fine gravel, moist, Fill with occasional clayey sand lenses				
871.9	2.5									
871.4	3.0									
870.9	3.5	S-2	1.5	7-6-7 N=13	SP	Brown poorly graded SAND; mostly coarse to fine sand, few coarse to fine gravel, trace clayey fines, moist				
870.4	4.0									
869.9	4.5									
869.4	5.0									
868.9	5.5	S-3	1.5	14-11-9 N=20	SP					
868.4	6.0									
867.9	6.5									
867.4	7.0									
866.9	7.5	S-4	1.5	6-8-7 N=15	SP					
866.4	8.0									
865.9	8.5									
865.4	9.0									
864.9	9.5									
864.4	10.0						10.0			
End of Boring										

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-2

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: CME 45

Crew Chief: ZM **Field Eng.:** JS **Rev. By:** RW

Coordinates: N=284776.2 E=13292714.4 (MI South 1ft)

Elevation: 874.9 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Date Begin: 08/27/2021

Date End: 08/27/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch. Cave in at 3.3 ft.

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
874.4	0.5					11 1/2" HMA				Fill 0' to 2.3'
873.9	1.0						1.0			
873.4	1.5	S-1	1.5	3-4-5 N=9	SC	Brown clayey SAND; mostly coarse to fine sand, some clayey fines, moist, Fill				
872.9	2.0									
872.4	2.5									2.3
871.9	3.0									
871.4	3.5									
870.9	4.0	S-2	1.5	5-8-10 N=18	SP	Brown poorly graded SAND with gravel; mostly coarse to fine sand, little coarse to fine gravel, trace clayey fines, moist				
870.4	4.5									
869.9	5.0									
869.4	5.5									
868.9	6.0									
868.4	6.5	S-3	1.5	7-9-9 N=18	SP					
867.9	7.0									
867.4	7.5									
866.9	8.0									
866.4	8.5									
865.9	9.0	S-4	1.5	11-9-9 N=18	SP					
865.4	9.5									
864.9	10.0									10.0

End of Boring

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-3

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: CME 45

Crew Chief: ZM **Field Eng.:** JS **Rev. By:** RW

Coordinates: N=284585.5 E=13292721.8 (MI South 1ft)

Elevation: 875.2 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Date Begin: 09/28/2021

Date End: 09/28/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch. Cave in at 2.0 ft.

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS	
874.7	0.5					3 1/2" HMA	0.3			Fill: 0' to 5.5'	
874.2	1.0					5 1/2" Red Brick	0.8				
873.7	1.5					Brown clayey SAND; mostly coarse to fine sand, some clayey fines, moist, Fill with clay lenses				S-2 and S-3: Poor recovery; possible coarse gravel / COBBLE	
873.2	2.0				SC						
872.7	2.5	S-1	1.5	15-10-7 N=17							
872.2	3.0										
871.7	3.5										
871.2	4.0										
870.7	4.5	S-2	0.7	6-11-7 N=18							
870.2	5.0										
869.7	5.5						5.5				
869.2	6.0					Brown poorly graded SAND with clay; mostly coarse to fine sand, few clayey fines, few coarse to fine gravel, moist					
868.7	6.5				SP-SC						
868.2	7.0	S-3	0.3	8-9-10 N=19							
867.7	7.5										
867.2	8.0										
866.7	8.5										
866.2	9.0										
865.7	9.5	S-4	1.5	5-9-10 N=19							
865.2	10.0						10.0				

End of Boring

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-4

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: CME 45

Crew Chief: ZM **Field Eng.:** JS **Rev. By:** RW

Coordinates: N=284278.6 E=13292742.8 (MI South 1ft)

Elevation: 876.5 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Date Begin: 08/25/2021

Date End: 08/25/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch. Cave in at 3.7 ft.

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
876.0	0.5					4 1/2" HMA	0.4			Fill 0' to 5.5'
875.5	1.0				XXXX	8 1/2" Red Brick	1.1			
875.0	1.5				XXXX	5" Concrete	1.5			
874.5	2.0	S-1	0.3	22-5-5 N=10	SC	Brown clayey SAND; mostly coarse to fine sand, some clayey fines, moist				S-1 and S-2: Poor recovery; possible coarse gravel / COBBLE
874.0	2.5									
873.5	3.0									
873.0	3.5									
872.5	4.0	S-2	1.0	6-4-3 N=7	SC					
872.0	4.5									
871.5	5.0									
871.0	5.5	S-3	1.5	2-1-2 N=3	SP	Brown poorly graded SAND; mostly coarse to fine sand, few coarse to fine gravel, moist				
870.5	6.0									
870.0	6.5									
869.5	7.0	S-3	1.5	2-1-2 N=3	SP					
869.0	7.5									
868.5	8.0	S-4	1.5	3-3-4 N=7	SP					
868.0	8.5									
867.5	9.0									
867.0	9.5	S-4	1.5	3-3-4 N=7	SP					
866.5	10.0						10.0			

End of Boring

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-5

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: Hand Auger

Crew Chief: Field Eng.: JV **Rev. By:** RW

Coordinates: N=284202.2 E=13292760.9 (MI South ift)

Elevation: 876.0 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Date Begin: 08/01/2021 **Date End:** 08/01/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	None
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Depth Drilled: 5.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
875.5	0.5	A-1				11" HMA	0.9			Fill: 0' to 2.7'
875.0	1.0									
874.5	1.5	A-2			SC	13" Natural Aggregate Base	1.9			
874.0	2.0									
873.5	2.5	A-3			SP	Brown clayey SAND; mostly coarse to fine sand, little clayey fines, few coarse to fine gravel, moist, Fill	2.7			
873.0	3.0									
872.5	3.5					Brown poorly graded SAND; mostly coarse to fine sand, few fine gravel, trace silty fines, moist	5.0			
872.0	4.0									
871.5	4.5									
871.0	5.0									
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-5A

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: Hand Auger

Crew Chief: Field Eng.: JV **Rev. By:** RW

Coordinates: N=284202.5 E=13292751.4 (MI South ift)

Elevation: 876.1 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Date Begin: 08/01/2021 **Date End:** 08/01/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	None
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Depth Drilled: 3.2 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
875.6	0.5	A-1				4" HMA	0.3			Fill: 0' to 3.2'
875.1	1.0					3 3/4" Red Brick	0.7			
874.6	1.5					4" Sand Base with Gravel	1.0			
874.1	2.0					3" Weathered Concrete	1.2			
873.6	2.5					11" Natural Aggregate Base	2.2			
873.1	3.0	A-2			SC	Brown clayey SAND with gravel; mostly coarse to fine sand, little clayey fines, little coarse to fine gravel, moist, Fill	3.2			Auger refusal at 3.2' due to possible coarse gravel / COBBLE
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-6

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: Hand Auger

Crew Chief: Field Eng.: JS **Rev. By:** RW

Coordinates: N=284227.4 E=13292777.5 (MI South ift)

Elevation: 876.8 ft **Datum:** NAVD 88 (GPS Observation)

Notes: Boring performed just prior to concrete installation. Concrete thickness was observed during placement

Plugging Record: Backfilled borehole with compacted cuttings.

Date Begin: 08/27/2021 **Date End:** 08/27/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	None
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 5.5 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
876.3	0.5					5 1/2" Concrete	0.4			Fill 0' to 3.0' Possible Fill 3.0' to 5.5'
875.8	1.0					2" Sand Base	0.6			
875.3	1.5				SC	Brown clayey SAND with gravel; mostly coarse to fine sand, little clayey fines, little coarse to fine gravel, moist, Fill				
874.8	2.0									
874.3	2.5									
873.8	3.0									
873.3	3.5				SP	Brown poorly graded SAND; mostly coarse to fine sand, few fine gravel, trace clayey fines, moist, possible Fill with occasional clayey sand lenses				
872.8	4.0									
872.3	4.5									
871.8	5.0									
871.3	5.5									
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-6A

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: Hand Auger

Crew Chief: Field Eng.: JS Rev. By: RW

Coordinates: N=284228.4 E=13292772.0 (MI South 1ft)

Elevation: 876.7 ft Datum: NAVD 88 (GPS Observation)

Notes: Boring performed just prior to concrete installation. Concrete thickness was observed during placement

Plugging Record: Backfilled borehole with compacted cuttings.

Date Begin: 08/27/2021

Date End: 08/27/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	None
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 3.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
876.2	0.5					5 1/2" Concrete	0.4			Fill 0' to 3.0'
875.7	1.0					2" Sand Base	0.6			
875.2	1.5				SC	Brown clayey SAND with gravel; mostly coarse to fine sand, some clayey fines, little coarse to fine gravel, moist, Fill				
874.7	2.0									
874.2	2.5									
873.7	3.0							3.0		
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-6B

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: Hand Auger

Crew Chief: Field Eng.: JS **Rev. By:** RW

Coordinates: N=284233.8 E=13292772.0 (MI South ift)

Elevation: 876.4 ft **Datum:** NAVD 88 (GPS Observation)

Notes: Boring performed just prior to concrete installation. Concrete thickness was observed during placement

Plugging Record: Backfilled borehole with compacted cuttings.

Date Begin: 08/27/2021

Date End: 08/27/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	None
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Depth Drilled: 3.5 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS	
875.9	0.5					5 1/2" Concrete	0.4			Fill 0' to 3.5'	
875.4	1.0					2" Sand Base	0.6				
874.9	1.5				SC	Brown clayey SAND with gravel; mostly coarse to fine sand, some clayey fines, little coarse to fine gravel, moist, Fill					
874.4	2.0										
873.9	2.5										
873.4	3.0										
872.9	3.5										
						End of Boring				Auger refusal at 3.5' on possible coarse gravel / COBBLE	

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-7

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: CME 45

Crew Chief: ZM **Field Eng.:** JS **Rev. By:** RW

Coordinates: N=283992.4 E=13292751.0 (MI South lift)

Elevation: 877.1 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Date Begin: 08/31/2021

Date End: 08/31/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch. Cave in at 4.0 ft.

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS	
876.6	0.5					14" HMA				Fill: 0' to 4.7'	
876.1	1.0										
875.6	1.5										
875.1	2.0	S-1	1.5	5-5-3 N=8	SC	Brown clayey SAND; mostly coarse to fine sand, some clayey fines, moist, Fill					
874.6	2.5										
874.1	3.0										
873.6	3.5										
873.1	4.0	S-2	1.5	3-4-5 N=9	SP	Brown poorly graded SAND; mostly coarse to fine sand, few coarse to fine gravel, trace silty fines, moist					
872.6	4.5										
872.1	5.0										
871.6	5.5	S-3	1.5	5-6-7 N=13	SP						
871.1	6.0										
870.6	6.5										
870.1	7.0										
869.6	7.5	S-4	1.5	5-6-7 N=13							
869.1	8.0										
868.6	8.5										
868.1	9.0										
867.6	9.5										
867.1	10.0					End of Boring	10.0				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-8

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: Hand Auger

Crew Chief: Field Eng.: JV **Rev. By:** RW

Coordinates: N=283804.0 E=13292769.5 (MI South 1ft)

Elevation: 877.0 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Date Begin: 09/08/2021

Date End: 09/08/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	None
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Depth Drilled: 5.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS	
876.5	0.5	A-1				18 1/4" HMA					
876.0	1.0										
875.5	1.5						1.5				
875.0	2.0	A-2				13" Natural Aggregate Base					
874.5	2.5						2.6				
874.0	3.0										
873.5	3.5										
873.0	4.0					SP-SM	Brown poorly graded SAND with silt and gravel; mostly coarse to fine sand, little coarse to fine gravel, few silty fines, moist				
872.5	4.5										
872.0	5.0						5.0				
						End of Boring					

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-9

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: CME 45

Crew Chief: ZM **Field Eng.:** JS **Rev. By:** RW

Coordinates: N=283422.5 E=13292777.2 (MI South 1ft)

Elevation: 876.1 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Date Begin: 08/26/2021

Date End: 08/26/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch. Cave in at 2.7 ft.

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
875.6	0.5					8" HMA	0.7			Fill 0' to 2.2'
875.1	1.0					11" Natural Aggregate Base with HMA Millings	1.6			
874.6	1.5	S-1	1.5	15-5-4 N=9	SC	Brown clayey SAND; mostly coarse to fine sand, trace silty fines, moist, Fill	2.2			
874.1	2.0									
873.6	2.5									
873.1	3.0									
872.6	3.5	S-2	1.5	6-7-7 N=14	SP	Brown poorly graded SAND; mostly coarse to fine sand, trace silty fines, moist				
872.1	4.0									
871.6	4.5									
871.1	5.0									
870.6	5.5	S-3	1.5	5-7-8 N=15	SP	Grades with few coarse to fine gravel				
870.1	6.0									
869.6	6.5									
869.1	7.0									
868.6	7.5	S-4	1.5	5-8-8 N=16	SP					
868.1	8.0									
867.6	8.5									
867.1	9.0									
866.6	9.5									
866.1	10.0						10.0			
End of Boring										

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-10

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: CME 45

Crew Chief: ZM **Field Eng.:** JS **Rev. By:** RW

Coordinates: N=283102.6 E=13292750.3 (MI South 1ft)

Elevation: 874.5 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Date Begin: 09/28/2021

Date End: 09/28/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch. Cave in at 5.0 ft.

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
874.0	0.5					14" HMA				Fill: 0' to 3.2'
873.5	1.0									
873.0	1.5						1.2			
872.5	2.0	S-1	1.5	3-3-3 N=6	SC	Brown clayey SAND; mostly coarse to fine sand, some clayey fines, moist, Fill with clay lenses				
872.0	2.5									
871.5	3.0									
871.0	3.5						3.2			
870.5	4.0	S-2	1.0	8-9-11 N=20	SP	Brown poorly graded SAND; mostly coarse to fine sand, few coarse to fine gravel, trace clayey fines, moist				S-2: Poor recovery; possible coarse gravel / COBBLE
870.0	4.5									
869.5	5.0									
869.0	5.5									
868.5	6.0									
868.0	6.5	S-3	1.5	4-5-4 N=9	SP	Grades with trace coarse to fine gravel and without clayey fines				
867.5	7.0									
867.0	7.5									
866.5	8.0						8.0			
866.0	8.5									
865.5	9.0	S-4	1.5	9-14-9 N=23	SP	Brown poorly graded SAND with gravel; mostly coarse to fine sand, little coarse to fine gravel, moist				
865.0	9.5									
864.5	10.0									

End of Boring

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-11

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: Hand Auger

Crew Chief: Field Eng.: JV **Rev. By:** RW

Coordinates: N=282927.7 E=13292772.2 (MI South ift)

Elevation: 874.6 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Date Begin: 09/08/2021

Date End: 09/08/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	None
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Depth Drilled: 5.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
874.1	0.5					8 7/8" HMA	0.7			
873.6	1.0					3 3/4" HMA Millings or Deteriorated HMA	1.1			
873.1	1.5	A-1				11" Natural Aggregate Bse				
872.6	2.0	A-2					2.0			
872.1	2.5					Brown poorly graded SAND with clay and gravel; mostly coarse to fine sand, little coarse to fine gravel, few clayey fines, moist				
871.6	3.0									
871.1	3.5	A-3			SP-SC					
870.6	4.0									
870.1	4.5									
869.6	5.0						5.0			
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-12

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: CME 45

Crew Chief: ZM **Field Eng.:** JS **Rev. By:** RW

Coordinates: N=284352.4 E=13292856.6 (MI South 1ft)

Elevation: 876.6 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch. Cave in at 3.5 ft.

Date Begin: 08/31/2021

Date End: 08/31/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
876.1	0.5					6 1/2" HMA	0.5			Fill: 0' to 4.6'
875.6	1.0					4" Sand Base	0.8			
875.1	1.5	S-1	1.5	2-3-2 N=5	SC	Brown clayey SAND; mostly coarse to fine sand, some clayey fines, moist, Fill				S-2: Poor recovery; possible coarse gravel / COBBLE
874.6	2.0									
874.1	2.5									
873.6	3.0									
873.1	3.5									
872.6	4.0	S-2	0.4	2-3-3 N=6	SP	Brown poorly graded SAND with gravel; mostly coarse to fine sand, little coarse to fine gravel, moist				Driller noted possible coarse gravel 4.6' to 8.0'
872.1	4.5									
871.6	5.0									
871.1	5.5	S-3	1.5	7-9-8 N=17	SP	Brown poorly graded SAND; mostly coarse to fine sand, few fine gravel, trace silty fines, moist				
870.6	6.0									
870.1	6.5									
869.6	7.0	S-4	1.5	6-7-10 N=17	SP					
869.1	7.5									
868.6	8.0						8.0			
868.1	8.5									
867.6	9.0									
867.1	9.5									
866.6	10.0						10.0			
End of Boring										

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-13

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: Hand Auger

Crew Chief: Field Eng.: JV **Rev. By:** RW

Coordinates: N=284405.1 E=13293179.1 (MI South ift)

Elevation: 877.4 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Date Begin: 09/09/2021 **Date End:** 09/09/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	None
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Depth Drilled: 4.5 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
876.9	0.5	A-1				4" HMA	0.3			Fill: 0' to 2.8'
876.4	1.0					4 1/2" Concrete	0.7			
875.9	1.5		A-2			6" Crushed Limestone Aggregate Base	1.2			
875.4	2.0	A-3			SP-SC	Brown poorly graded SAND with clay; mostly coarse to fine sand, few clayey fines, few fine gravel, moist, Fill	2.8			
874.9	2.5									
874.4	3.0									
873.9	3.5				SP	Brown poorly graded SAND; mostly coarse to fine sand, few coarse to fine gravel, trace silty fines, moist	4.5			
873.4	4.0									
872.9	4.5					End of Boring				Auger refusal at 4.5' due to possible coarse gravel / COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-14

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: Hand Auger

Crew Chief: Field Eng.: JV **Rev. By:** RW

Coordinates: N=284367.3 E=13293507.2 (MI South ift)

Elevation: 878.2 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Date Begin: 09/09/2021 **Date End:** 09/09/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	None
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Depth Drilled: 5.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
877.7	0.5	A-1				8 1/2" HMA	0.7			Fill: 0' to 2.9'
877.2	1.0					15" Crushed Limestone Aggregate Base				
876.7	1.5	A-2			SC	Brown clayey SAND; mostly coarse to fine sand, little clayey fines, few coarse to fine gravel, moist, Fill	2.0			
876.2	2.0									
875.7	2.5	A-3		20	SP	Brown poorly graded SAND; mostly coarse to fine sand, few coarse to fine gravel, trace silty fines, moist	2.9			
875.2	3.0									
874.7	3.5									
874.2	4.0									
873.7	4.5									
873.2	5.0					End of Boring	5.0			

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-15

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: Hand Auger

Crew Chief: Field Eng.: JV **Rev. By:** RW

Coordinates: N=284398.8 E=13293675.4 (MI South ift)

Elevation: 880.7 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Date Begin: 09/09/2021

Date End: 09/09/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	None
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Depth Drilled: 5.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS	
880.2	0.5	A-1		5		4" HMA	0.3			Fill: 0' to 3.9'	
879.7	1.0					3 1/4" Red Brick	0.6				
879.2	1.5					2" Sand Base	1.0				
878.7	2.0	A-2				2 1/2" Concrete	1.7				
878.2	2.5					8" Crushed Limestone Aggregate Base					
877.7	3.0				SC	Brown clayey SAND; mostly coarse to fine sand, little clayey fines, trace coarse to fine gravel, moist, Fill					
877.2	3.5					Grades with few coarse to fine gravel at 3.0'	3.9				
876.7	4.0	A-3									
876.2	4.5					SP	Brown poorly graded SAND with gravel; mostly coarse sand, little coarse to fine gravel, trace silty fines, moist				
875.7	5.0							5.0			
End of Boring											

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



LOG OF BORING

Project No.: 211279

Boring No.: B-16

Sheet: 1 of 1

Project: City of Ann Arbor - State Street and North University

Client: City of Ann Arbor

Location: Ann Arbor, Michigan

Drill Type: CME 45

Crew Chief: ZM **Field Eng.:** JS **Rev. By:** RW

Coordinates: N=284372.9 E=13293670.0 (MI South 1ft)

Elevation: 879.9 ft **Datum:** NAVD 88 (GPS Observation)

Notes:

Date Begin: 08/31/2021

Date End: 08/31/2021

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	3 1/4"	During	None
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer	Auto			

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch. Cave in at 3.6 ft.

Depth Drilled: 10.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100%

QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
879.4	0.5	S-1	1.5	3-3-2 N=5	SC	8" HMA	0.7			Fill: 0' to 3.0'
878.9	1.0					8" Natural Aggregate Base with HMA	1.3			
878.4	1.5					Millings				
877.9	2.0					Brown clayey SAND; mostly coarse to fine sand, some clayey fines, moist, Fill				
877.4	2.5									
876.9	3.0	S-2	1.5	4-4-5 N=9	SP	Brown poorly graded SAND; mostly coarse to fine sand, few fine gravel, trace silty fines, moist				
876.4	3.5									
875.9	4.0									
875.4	4.5									
874.9	5.0									
874.4	5.5	S-3	1.5	3-2-2 N=4	SP	Grades with trace fine gravel				
873.9	6.0									
873.4	6.5									
872.9	7.0									
872.4	7.5									
871.9	8.0	S-4	1.5	3-4-5 N=9	SP					
871.4	8.5									
870.9	9.0									
870.4	9.5									
869.9	10.0					10.0				

End of Boring

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.



Double Ring Infiltration Test

Client:

City of Ann Arbor

Project:

211279
City of Ann Arbor State Street and North
University
Various Locations

Activity Information

Weather: Sunny

Low / High Temp, °F: 67 / 87

Activity Date: 08/26/2021

Tested By: Schaap, Jonathan

Test No.: B-1

DOUBLE RING INFILTRATION TEST - SEMCOG METHOD

Pre-Test Soaking Duration (min): 60

Ground Surface Elev. (ft): 874.4

Water Level Drop in Last 30 Minutes of Presoak (in): 30

Test Elev. (ft): 866.6

Inner Diameter (in): 4

Groundwater Elev. (ft): None

Outer Diameter (in): 6

Soil Description: Brown poorly graded SAND

Test Data

Time (min:sec)	Water Drop (in)	Time Interval (min)	Infiltration Rate (inches per hour)
10	8 1/2	10	51
20	8 1/2	10	51
30	8 1/4	10	49 1/2
40	8 1/4	10	49 1/2
50	8 1/4	10	49 1/2

Note: This test method provides a measure of infiltration rate, not hydraulic conductivity. Although the units of infiltration rate, and hydraulic conductivity are similar, there is a distinct difference between these two quantities. They cannot be directly related unless the hydraulic boundary conditions, such as hydraulic gradient and the extent of lateral flow of water are known or can be reliably estimated. Test results apply only to the specific test location, depth/elevation, and in-situ moisture content and density at time of test. An appropriate factor of safety should be applied to these results.

Remarks: Initial Head: 36"



Double Ring Infiltration Test

Client:

City of Ann Arbor

Project:

 211279
 City of Ann Arbor State Street and North
 University
 Various Locations

Activity Information

Weather: Sunny

Low / High Temp, °F: 46 / 72

Activity Date: 09/28/2021

Tested By: Schaap, Jonathan

Test No.: B-3

DOUBLE RING INFILTRATION TEST - SEMCOG METHOD

Pre-Test Soaking Duration (min): 60

Ground Surface Elev. (ft): 875.2

Water Level Drop in Last 30 Minutes of Presoak (in): 14

Test Elev. (ft): 867.7

Inner Diameter (in): 4

Groundwater Elev. (ft): None

Outer Diameter (in): 6

Soil Description: Brown poorly graded SAND with clay

Test Data

Time (min:sec)	Water Drop (in)	Time Interval (min)	Infiltration Rate (inches per hour)
10:00	4 1/2	10	27
20:00	4 1/2	10	27
30:00	4 1/2	10	27
40:00	4 1/2	10	27

Note: This test method provides a measure of infiltration rate, not hydraulic conductivity. Although the units of infiltration rate, and hydraulic conductivity are similar, there is a distinct difference between these two quantities. They cannot be directly related unless the hydraulic boundary conditions, such as hydraulic gradient and the extent of lateral flow of water are known or can be reliably estimated. Test results apply only to the specific test location, depth/elevation, and in-situ moisture content and density at time of test. An appropriate factor of safety should be applied to these results.

Remarks: Initial Head: 26"



Double Ring Infiltration Test

Client:

City of Ann Arbor

Project:

 211279
 City of Ann Arbor State Street and North
 University
 Various Locations

Activity Information

Weather: Sunny

Low / High Temp, °F: 68 / 86

Activity Date: 08/25/2021

Tested By: Schaap, Jonathan

Test No.: B-4

DOUBLE RING INFILTRATION TEST - SEMCOG METHOD

Pre-Test Soaking Duration (min): 60

Ground Surface Elev. (ft): 876.5

Water Level Drop in Last 30 Minutes of Presoak (in): 6

Test Elev. (ft): 869.0

Inner Diameter (in): 4

Groundwater Elev. (ft): None

Outer Diameter (in): 6

Soil Description: Brown poorly graded SAND

Test Data

Time (min:sec)	Water Drop (in)	Time Interval (min)	Infiltration Rate (inches per hour)
10	1 3/4	10	10 1/2
20	1 3/4	10	10 1/2
30	1 3/4	10	10 1/2
40	1 3/4	10	10 1/2

Note: This test method provides a measure of infiltration rate, not hydraulic conductivity. Although the units of infiltration rate, and hydraulic conductivity are similar, there is a distinct difference between these two quantities. They cannot be directly related unless the hydraulic boundary conditions, such as hydraulic gradient and the extent of lateral flow of water are known or can be reliably estimated. Test results apply only to the specific test location, depth/elevation, and in-situ moisture content and density at time of test. An appropriate factor of safety should be applied to these results.

Remarks: Initial Head: 30"

EXISTING GEOTECHNICAL INFORMATION

B-7: 10' SOIL BORING INDICATES 14" OF HMA PAVEMENT; 42" OF MOIST BROWN CLAYEY SAND W/ MOSTLY COARSE TO FINE SAND AND SOME CLAYEY FINES; 64" MOIST BROWN POORLY GRADED SAND W/ MOSTLY COARSE TO FINE SAND, FEW COARSE TO FINE GRAVEL, AND TRACE SILTY FINES.

B-8: TWO 5' SOIL BORINGS INDICATES 18 1/4"-24" OF HMA PAVEMENT, 13" OF NATURAL AGGREGATE BASE, AND 29" OF BROWN POORLY GRADED SAND WITH LITTLE COARSE TO FINE GRAVEL, AND FEW SILTY FINES.

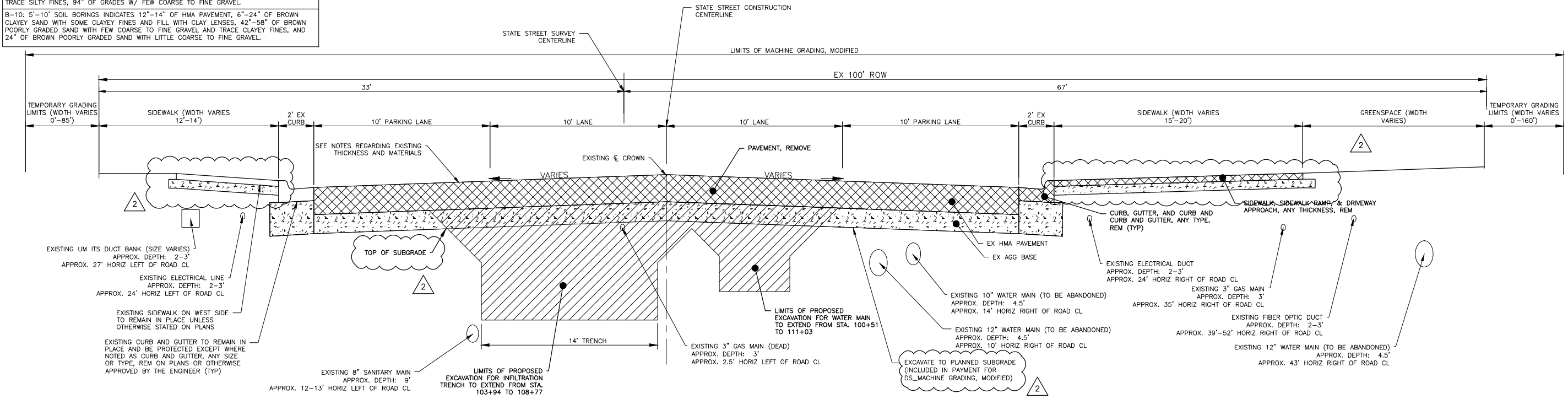
B-9: 10' SOIL BORING INDICATES 8" HMA PAVEMENT, 11" NATURAL AGGREGATE BASE W/ HMA MILLINGS, 7" OF MOIST BROWN CLAYEY SAND W/ MOSTLY COARSE TO FINE SAND AND TRACE SILTY FINES, 94" OF GRADES W/ FEW COARSE TO FINE GRAVEL.

B-10: 5'-10' SOIL BORINGS INDICATES 12"-14" OF HMA PAVEMENT, 6"-24" OF BROWN CLAYEY SAND WITH SOME CLAYEY FINES AND FILL WITH CLAY LENSES, 42"-58" OF BROWN POORLY GRADED SAND WITH FEW COARSE TO FINE GRAVEL, AND TRACE CLAYEY FINES, AND 24" OF BROWN POORLY GRADED SAND WITH LITTLE COARSE TO FINE GRAVEL.

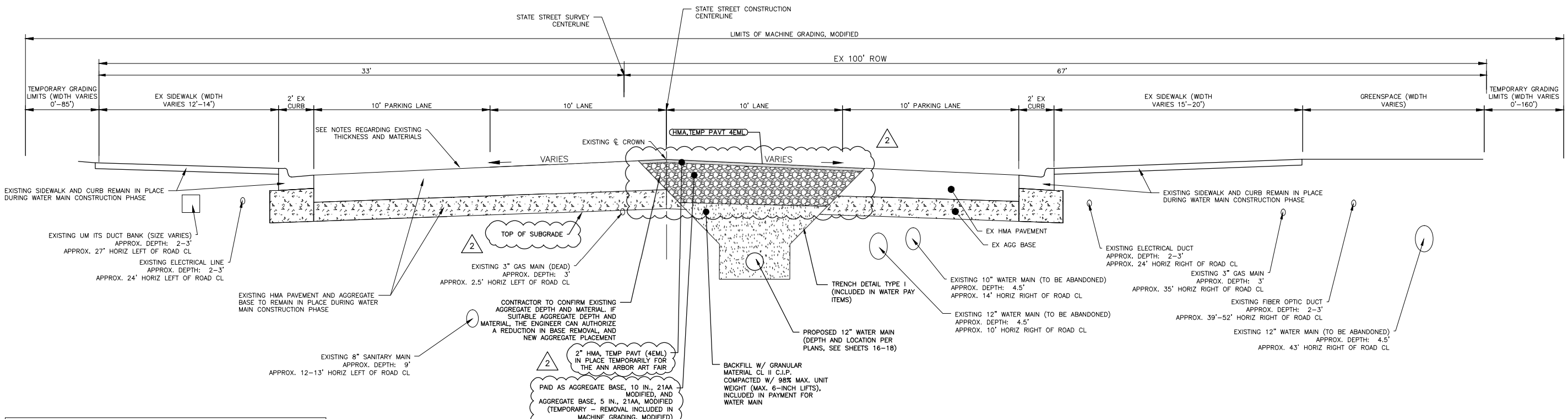
NOTES:

HISTORICAL RECORDS INDICATE A TROLLEY TRACK MAY EXIST BURIED IN THE STATE ROAD RIGHT OF WAY. SHOULD THIS BE DISCOVERED DURING CONSTRUCTION, PAY ITEMS DEDICATED TO THE REMOVAL OF THE TROLLEY TRACK WILL APPLY.

PRIOR TO THE ANN ARBOR ART FAIR, PAVEMENT, CURB AND SIDEWALK REMOVAL WILL BE LIMITED TO THE LIMITS OF THE PROPOSED 12" WATER MAIN TRENCH UNLESS AUTHORIZED BY THE ENGINEER.



**STATE STREET EXISTING CROSS SECTION
STA 100+51 - STA 111+70**



**PRE-ART FAIR PHASE
STATE STREET PROPOSED CROSS-SECTION
FOR WATER MAIN INSTALLATION ONLY
STA 100+51 - STA 111+03**

HMA APPLICATION ESTIMATE (THIS SECTION)					
PAY ITEM	HMA MIX	APPLICATION RATE	EST. THICKNESS	PERF GRADE	AWI (MIN)
HMA, TEMP PAVT (4EML)	HMA, TEMP PAVT (4EML)	220 LB/SYD	2 INCH	PG 58-28	N/A

FOR INFORMATION ONLY: APPLY BOND COAT AT 0.05 TO 0.15 GAL/SYD BETWEEN PROPOSED HMA LIFTS (PAYMENT INCLUDED IN PAYMENT FOR HMA MIXTURES).

C:\pwork\wade-trim_brown\dl339881\CTP-PLTS-Typicals.dwg Dwg Created: 25-Feb-25 - Plot Date: 25-Feb-25

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STATE STREET IMPROVEMENTS

TYPICAL SECTIONS - STATE ST

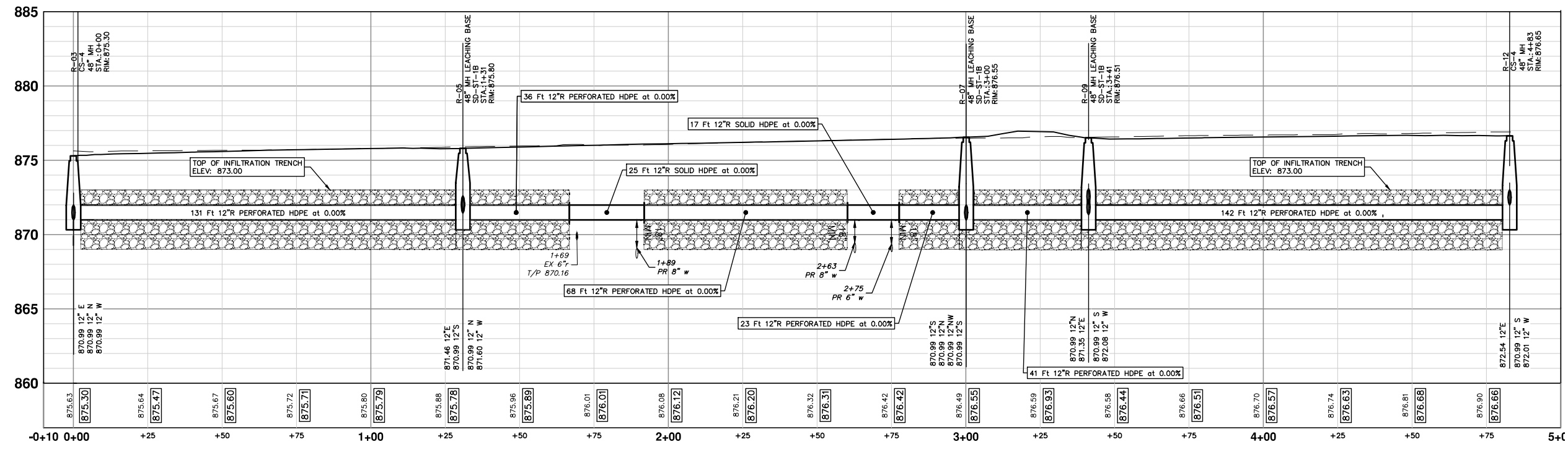
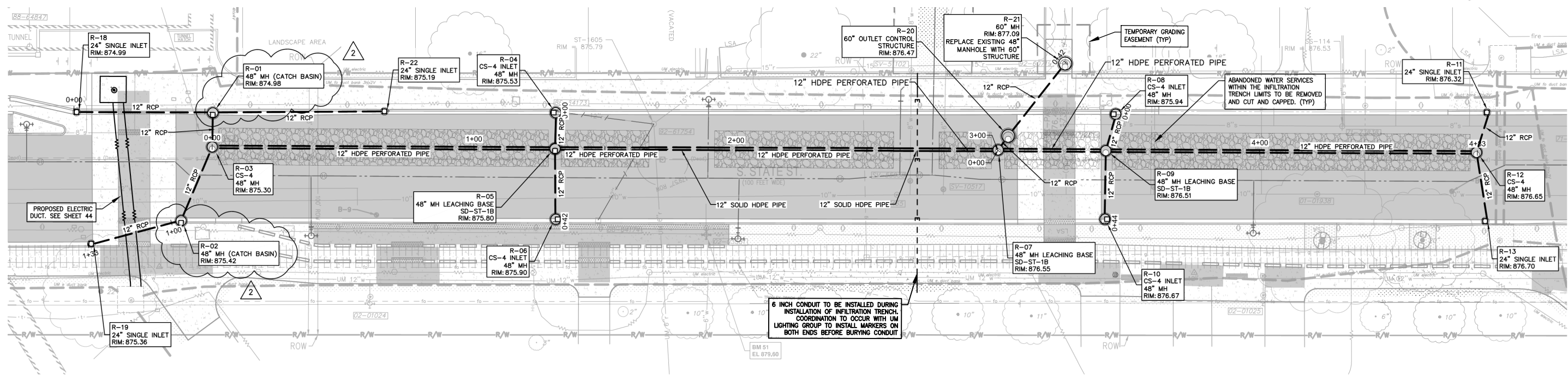
SCALE PLAN: N.T.S.

DRAWING No. 2023-025-20

SHEET No.

20 OF 75

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STORM SEWER PROFILE: R-03, R-05, R-07, R-09, R-12

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STATE STREET IMPROVEMENTS

PROPOSED STORM PLAN & PROFILE - STATE ST

SCALE: 1"=20'

DRAWING No. 2023-023-41

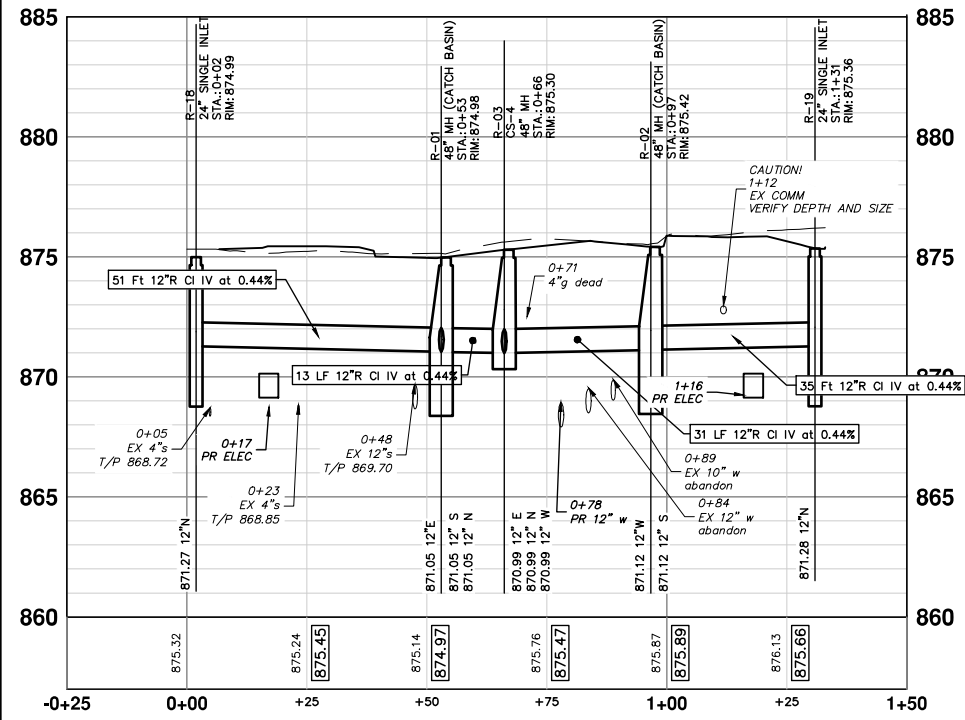
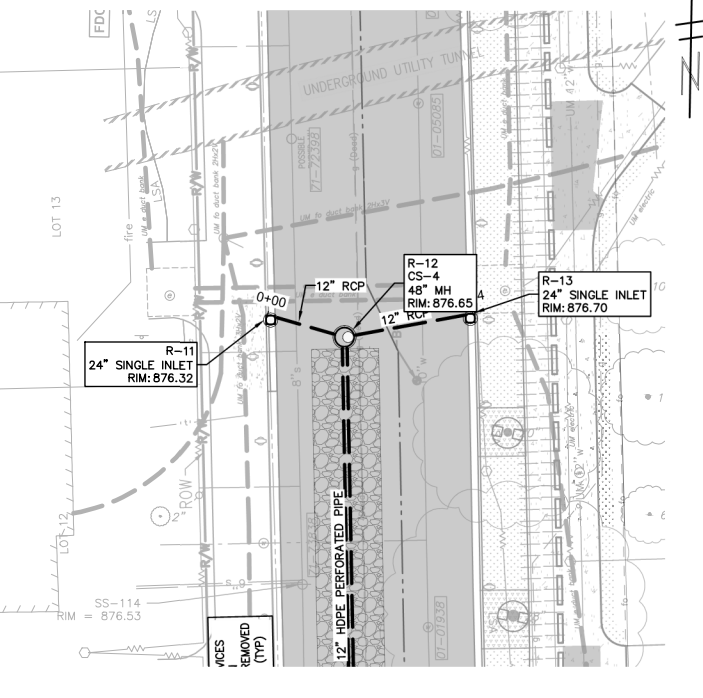
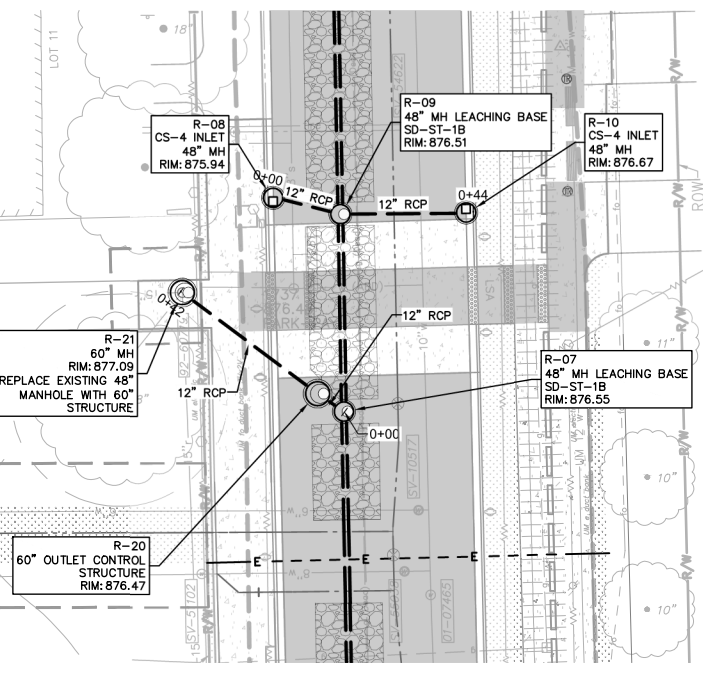
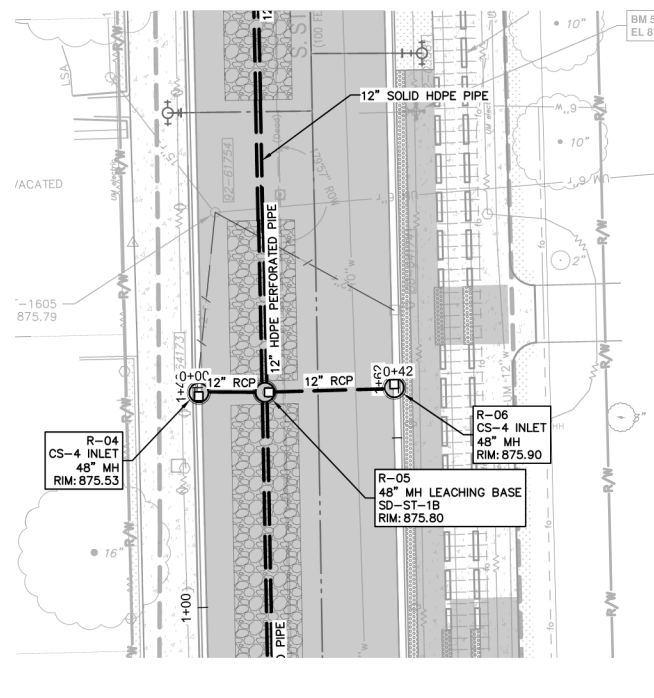
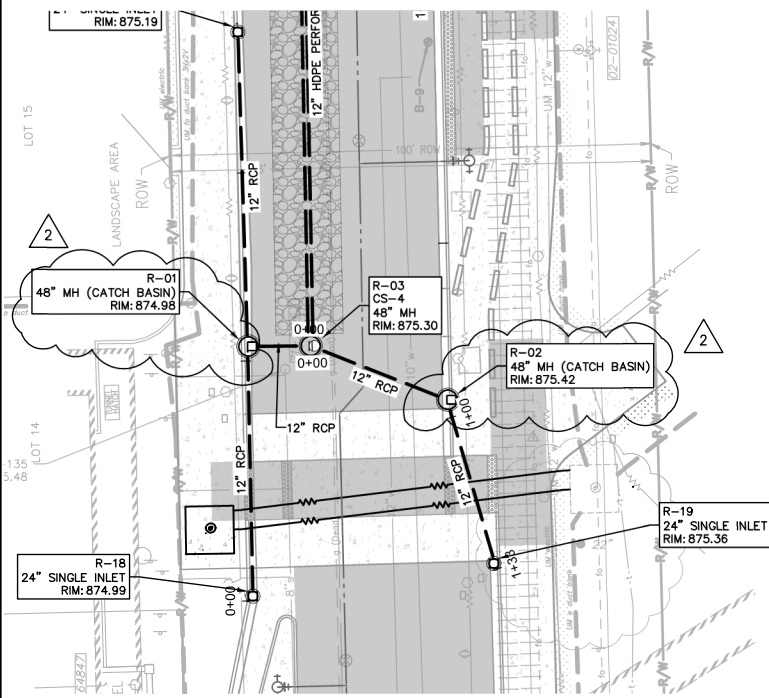
SHEET No. 41 OF 75

811
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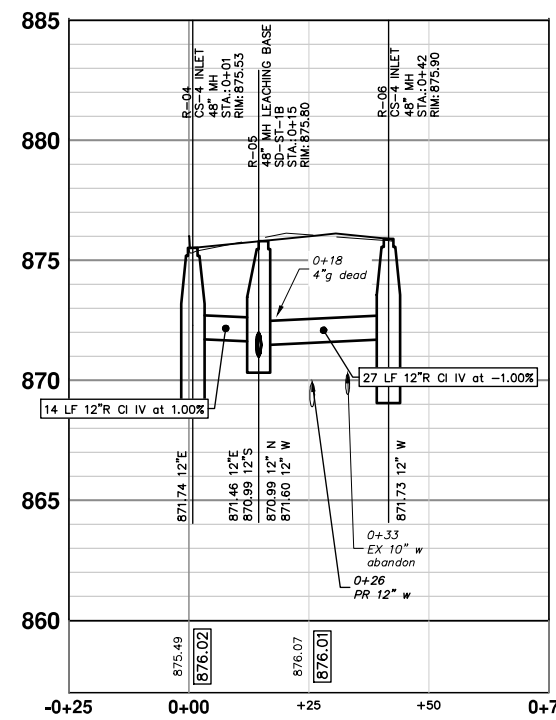
REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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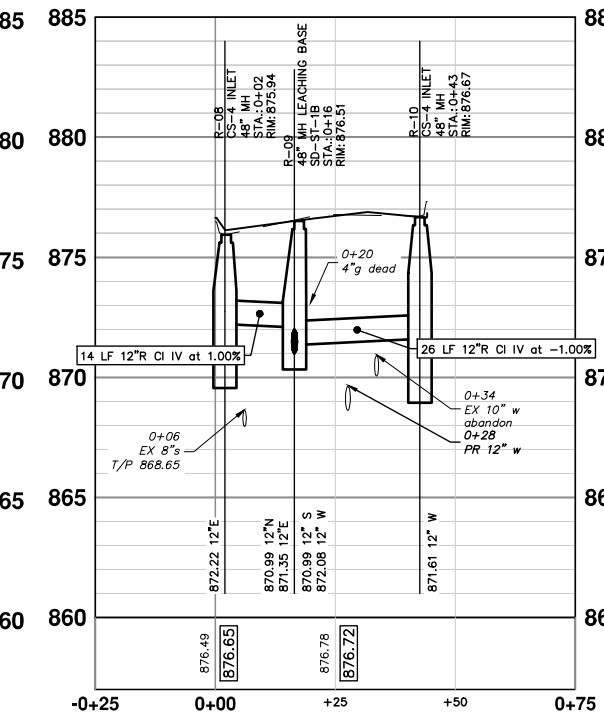
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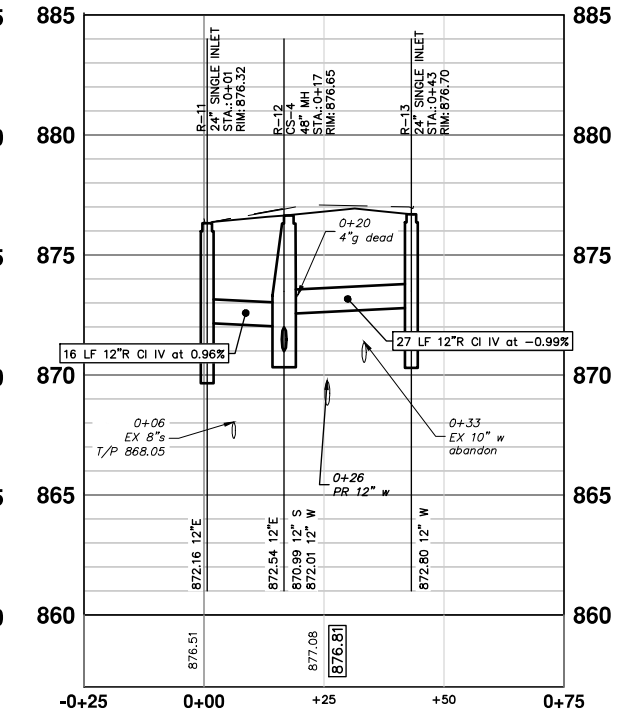
STORM SEWER PROFILE: R-18, R-01, R-03, R-02, R-19



STORM SEWER PROFILE: R-04, R-05, R-06



STORM SEWER PROFILE: R-08, R-09, R-10



STORM SEWER PROFILE: R-11, R-12, R-13

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STATE STREET IMPROVEMENTS

PROPOSED STORM PLAN & PROFILE - STATE ST

SCALE: 1"=20'

DRAWING No. 2023-023-42

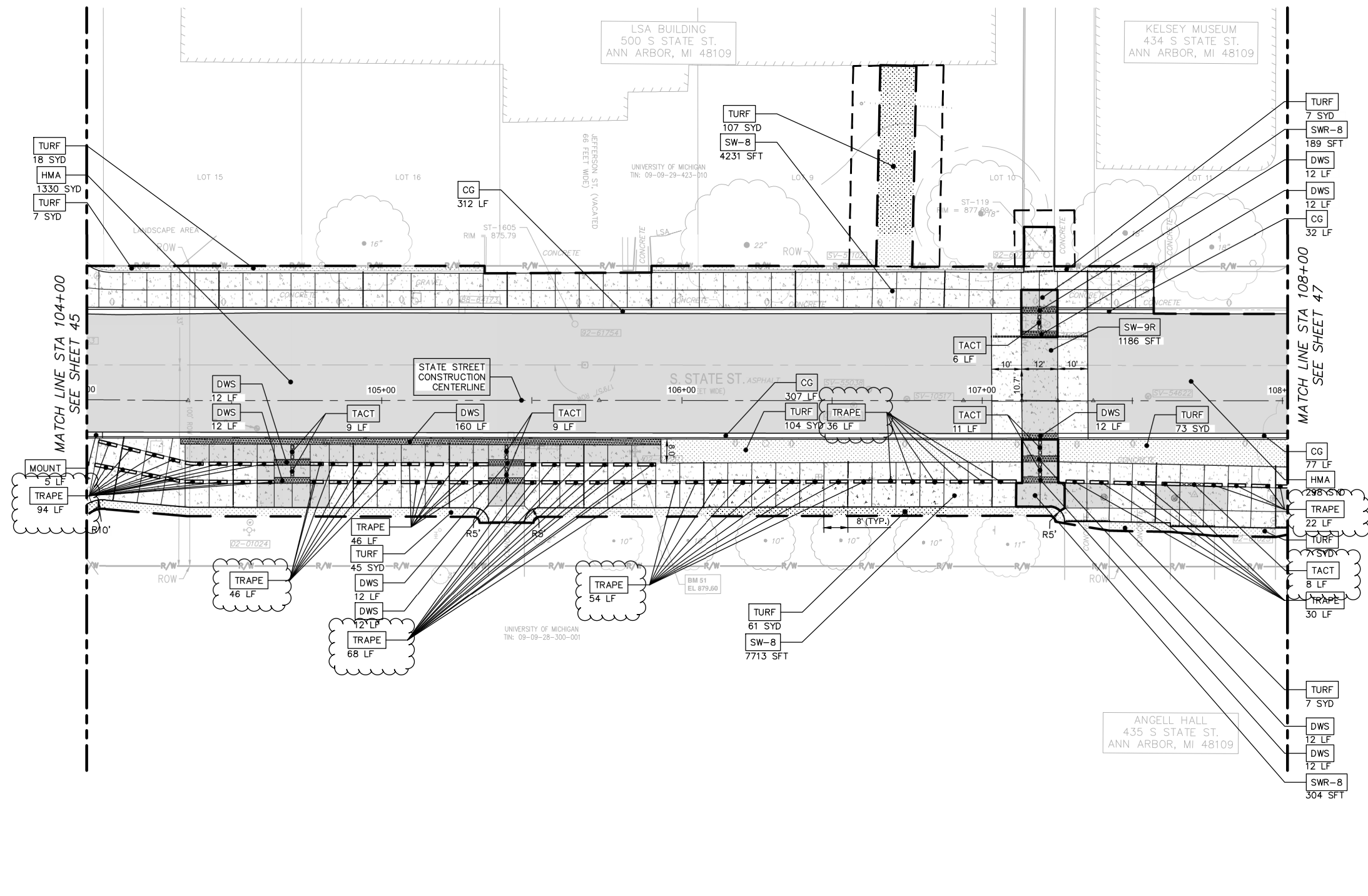
SHEET No. 42 OF 75

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C:\pw_work2\1339881\CRD-PLTS-Construction-State.dwg Dwg Created: 18-Feb-25 - _a2 standard bw.stb - Plot Date: 21-Feb-25



LEGEND

- PROPOSED 8-INCH CONCRETE LEVEL LANDING
- PROPOSED 8-INCH CONCRETE SIDEWALK
- TURF ESTABLISHMENT, PERFORMANCE
- PROPOSED PAVEMENT LIMITS
- PROPOSED SLOPE STAKE LINE
- PROPOSED SIDEWALK RAMP
- PROPOSED GRADING EASEMENT
- CONTROL JOINT
- EXPANSION JOINT

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	SURFACE AREA FOR HMA
CG	CONC, CURB OR CURB & GUTTER, ALL TYPES
MOUNT	DS_MOUNTABLE CURB AND GUTTER
SW-8	DS_CONC, SIDEWALK, FIBERMESH, 8 IN.
DWS	DETECTABLE WARNING SURFACE
C-P	DS_PLANTER CURB
CG-M	CONC, DRIVEWAY OPENING, TYPE M. PAID FOR AS CONC, CURB, CURB & GUTTER, ALL TYPES
SWR-8	DS_CONC, SIDEWALK RAMP, FIBERMESH, 8 IN.
SW-9R	DS_CONC, SIDEWALK, FIBERMESH, 9 IN., RAISED
TURF	DS_TURF ESTABLISHMENT, PERFORMANCE
TRAPE	DS_TRAPEZOID DELINEATOR, ANY SIZE
MULCH	DS_PLANTING SOIL AND MULCH
TACT	DS_TACTILE DIRECTIONAL INDICATOR



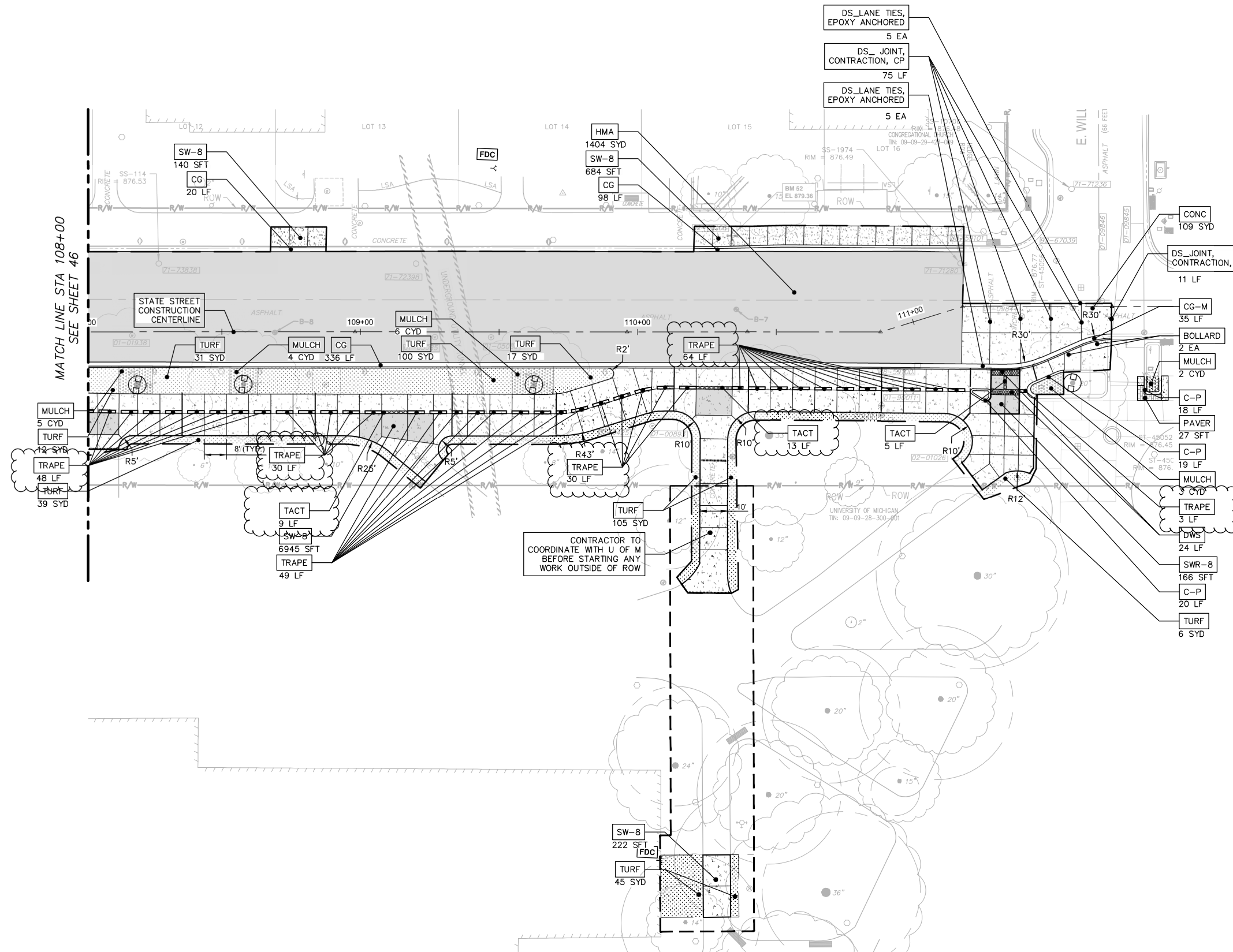
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING
STATE STREET IMPROVEMENTS
PROPOSED ROAD CONSTRUCTION PLAN

SCALE: 1"=20'
DRAWING No.
2023-023-28



LEGEND

[Pattern]	PROPOSED 8-INCH CONCRETE LEVEL LANDING
[Pattern]	PROPOSED 8-INCH CONCRETE SIDEWALK
[Pattern]	TURF ESTABLISHMENT, PERFORMANCE
[Pattern]	PROPOSED PAVEMENT LIMITS
[Pattern]	MULCH
[Line]	PROPOSED SLOPE STAKE LINE
[Line]	PROPOSED SIDEWALK RAMP
[Line]	PROPOSED GRADING EASEMENT
[Line]	CONTROL JOINT
[Line]	EXPANSION JOINT

CONSTRUCTION KEY

KEY	DESCRIPTION
HMA	SURFACE AREA FOR HMA
CG	CONC, CURB OR CURB & GUTTER, ALL TYPES
MOUNT	DS_MOUNTABLE CURB AND GUTTER
SW-8	DS_CONC, SIDEWALK, FIBERMESH, 8 IN.
DWS	DETECTABLE WARNING SURFACE
C-P	DS_PLANTER CURB
CG-M	CONC, DRIVEWAY OPENING, TYPE M. PAID FOR AS CONC, CURB, CURB & GUTTER, ALL TYPES
SWR-8	DS_CONC, SIDEWALK RAMP, FIBERMESH, 8 IN.
SW-9R	DS_CONC, SIDEWALK, FIBERMESH, 9 IN., RAISED
TURF	DS_TURF ESTABLISHMENT, PERFORMANCE
TRAPE	DS_TRAPEZOID DELINEATOR, ANY SIZE
MULCH	DS_PLANTING SOIL AND MULCH
BOLLARD	DS_STEEL BOLLARD
PAVER	BRICK PAVERS, SIDEWALK, REM AND REINSTALL
TACT	DS_TACTILE DIRECTIONAL INDICATOR
CONC	CONC PAVT, NON-REINF, 8 IN.

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STATE STREET IMPROVEMENTS

PROPOSED ROAD CONSTRUCTION PLAN

SCALE: 1"=20'

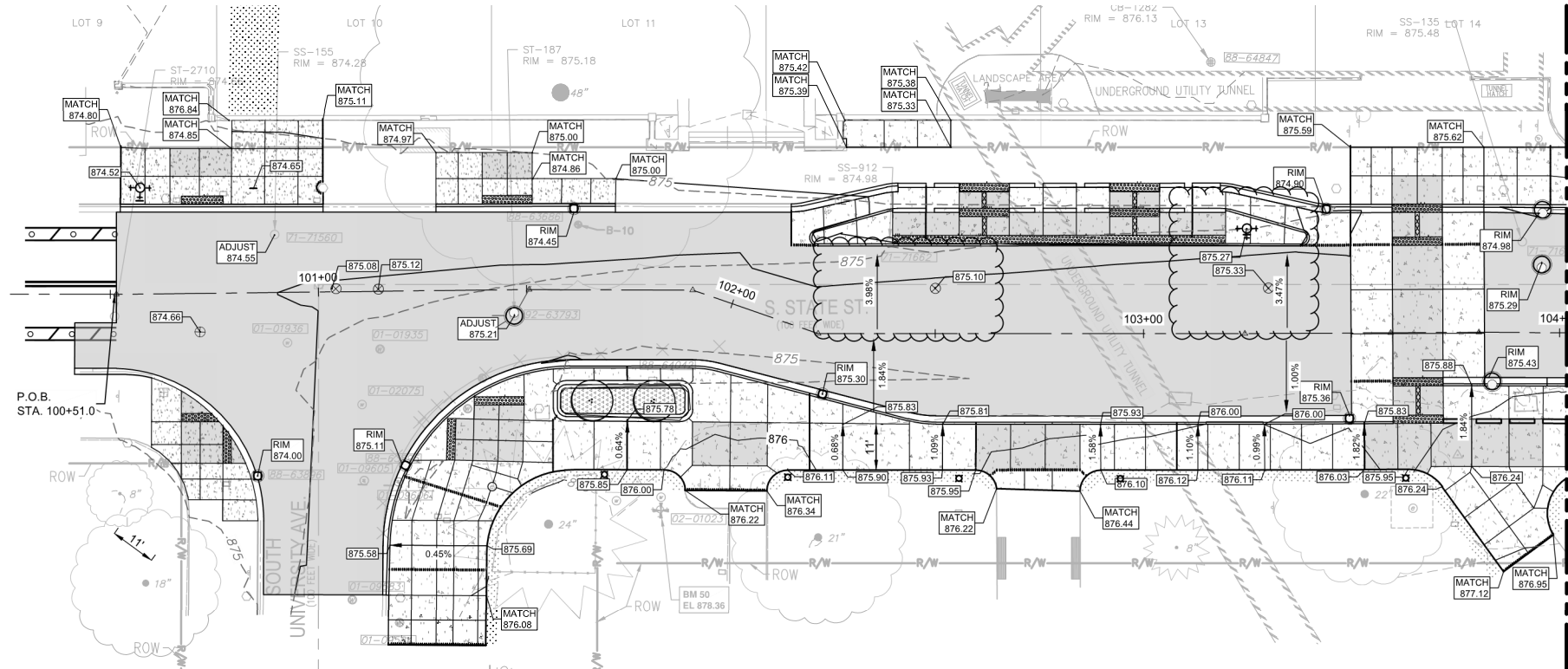
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SHEET No. 47 of 75

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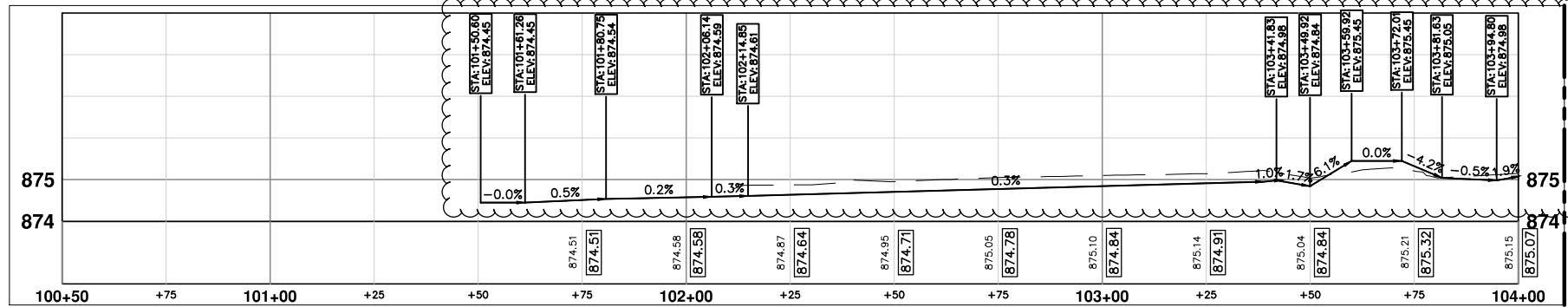
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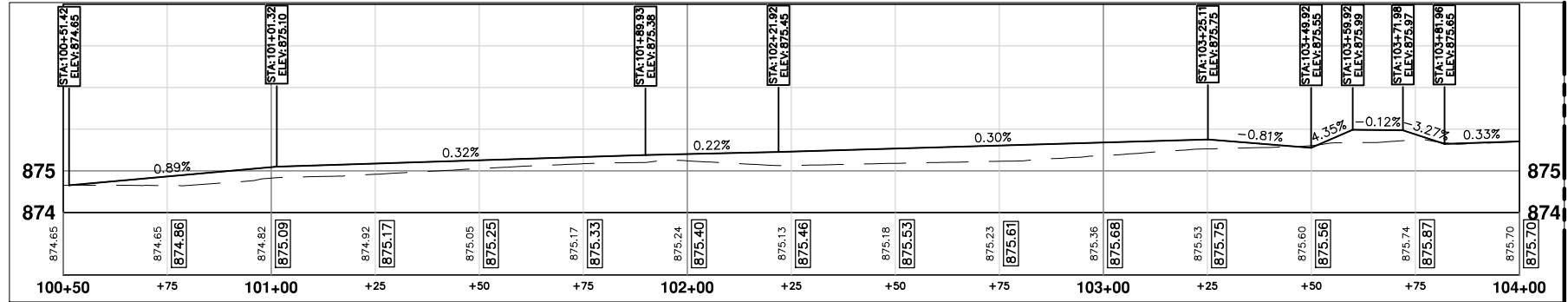


MATCH LINE STA 104+00
SEE SHEET 48

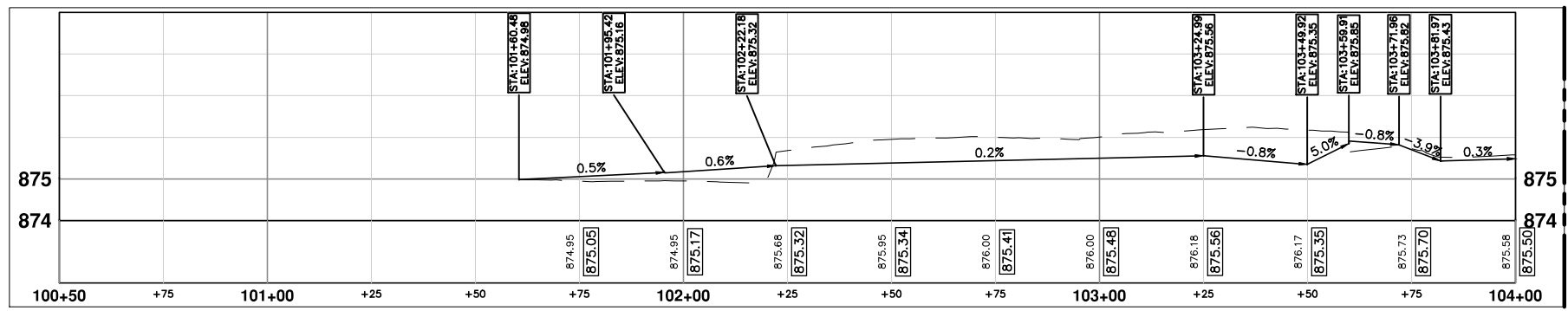
LEFT



CENTER



RIGHT



MATCH LINE STA 104+00
SEE SHEET 48



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STATE STREET IMPROVEMENTS

PAVING PLAN & PROFILE - STATE ST

SCALE: 1"=20'

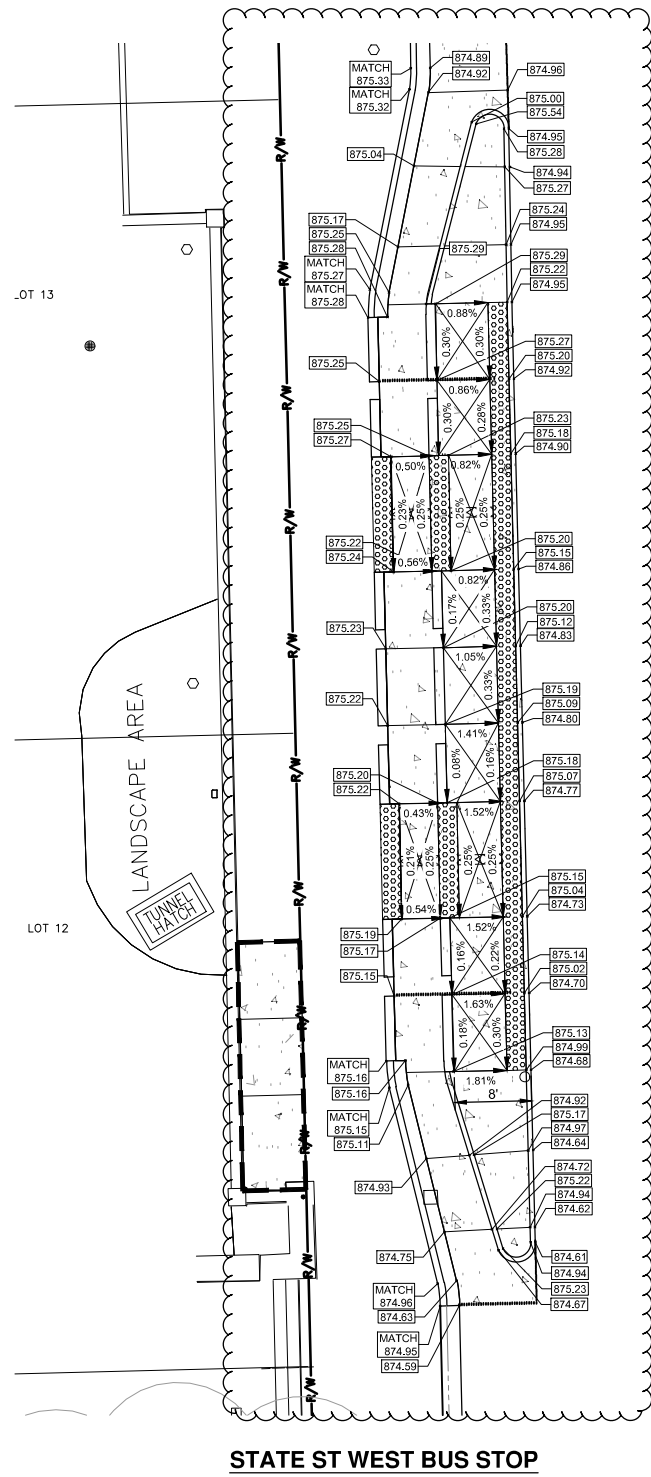
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SHEET No. 48 of 75

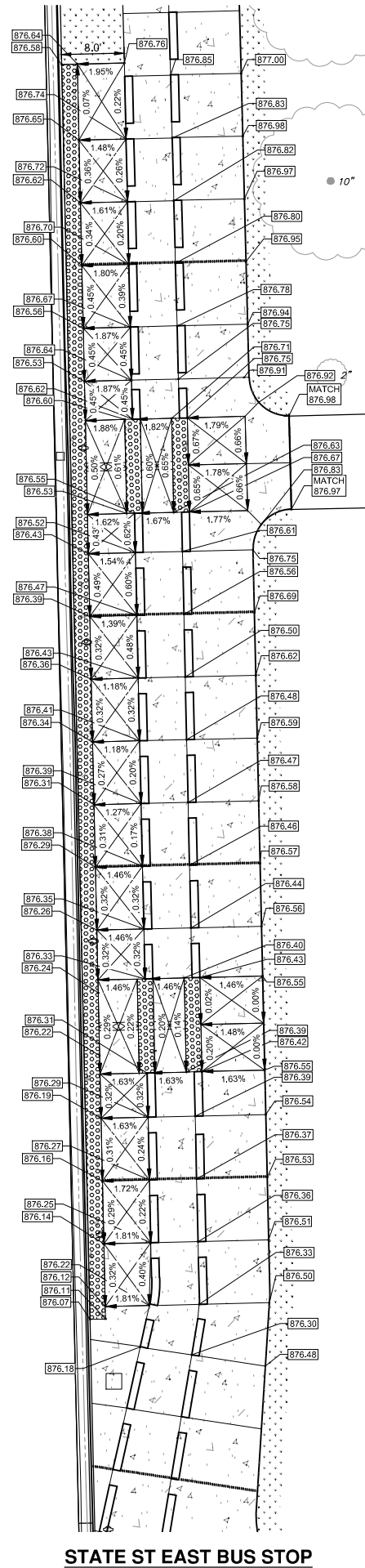
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STATE ST WEST BUS STOP



STATE ST EAST BUS STOP



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STATE STREET IMPROVEMENTS

DETAILED GRADING

SCALE PLAN: 1"=10'

DRAWING No.
2023-023-39

SHEET No.

53 of 75

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